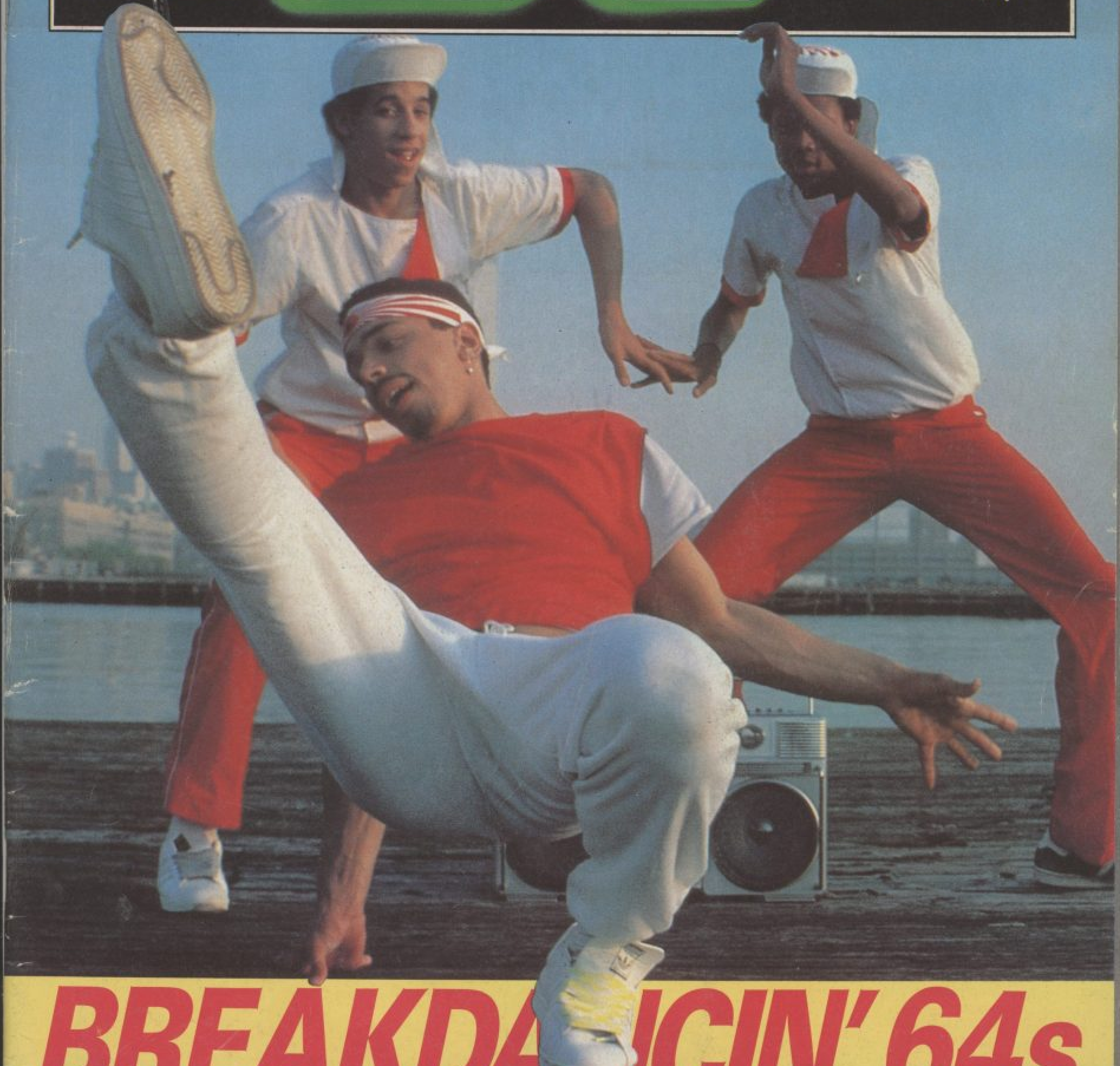
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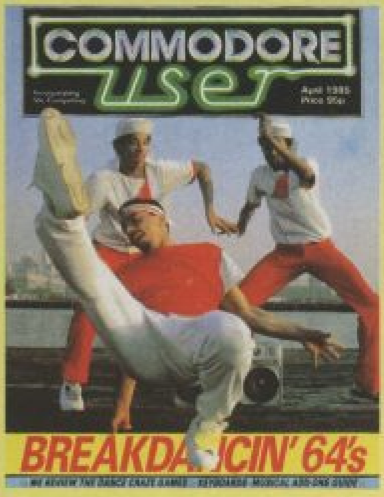
☆ COMMODORES GO TO SCHOOL ☆ LISTINGS FOR 64, C16 VIC 20 ☆

☆ WIN – A GHETTOBLASTER PLUS BREAK GAMES AND IMPOSSIBLE MISSION ☆

CONTENTS

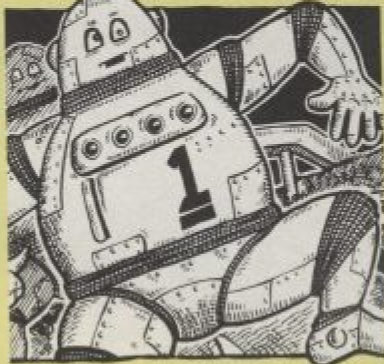
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APRIL 1985



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SPECIAL OFFER

Here's an offer you just can't refuse. *Commodore User* has teamed up with Beau Jolly to bring you an exclusive money saving offer.

Beau-Jolly are releasing two tapes, for the Commodore 64 and the Spectrum, called Mega Hits. Each game tape features 10 top games from top software houses like Quicksilva, Beyond, Alligata, Anirog, Interceptor, Taskset, Micropower, Micro-Gen, Elite, Melbourne House, PSS, Realtime and Microsphere. All the games have featured highly in the *Commodore User* Top 30 charts.

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NEWS

SUPER GRAN STEALS SHOW

At the Leisure Electronics Show, recently held at Olympia in London, lots of new games were on display. *Commodore User* was there to bring you all the news.

Super Gran turned up at the show to promote a new 64 game from Geordie software house, **Tynesoft**.

This is the firm's second attempt to convert a TV programme into a computer game. A previous *Auf Wiedersehen Pet* game never made the grade.

But Tynesoft are confident that Super Gran's nine million viewers will make all the difference this time.

The game takes place in Super Gran's home town of Chisleton. The first screen has her flying above the town in her Fly-Cycle attempting to repel an attack from the imposters. These nasties are flinging things at the geriatric superstar who scores points for each nastie grounded.

Screen two is a scrolling screen set on the streets of the town. Super Gran has to rescue the runaway cats and dogs as well as dodging the balloons. Later screens introduce a platform challenge, a race in Gran's famous Skimmer, and a completely new piece of wizardry — the invisibility machine.

Other personalities making their debut in computer games at the show were Terry and Arfur in **DK Tronics** new game — *Minder*. Sounds pretty similar to the TV programme this one — you have to do deals, buy a bit, sell a bit. All typical Arthur Daley stuff.

Film companies were also getting their share of the action with two major films being previewed as computer games — *Gremlins* from **Adventure International**, and the *Rocky Horror Show* from **CRL**.

Gremlins is being programmed in the UK by Brian Howarth, author of the well-respected *Mysterious Adventures* series.



Super Gran, unlikely star of Tynesoft's new game

Forty graphics screens will be included — up to the high standard set in the *Hulk* and *Spiderman*, says Howarth. The game will be loosely based on the plot of the film though will not necessarily reach the same conclusion.

Other highlights for adventure fans included two new games from **Level 9** — *Emerald Isle* and *Lords of Time*.

The solution to a mystery that has been keeping this office in confusion for the last three weeks was also discovered at the show. We were sent a piece of card in a plain brown envelope with Confuzion written on it. Advertisements appeared in the classified section with the same unexplained message. What's it all about? A new game from **Incentive** that's what. One of those railway track type games — where you have to join up the rails to enable the train to get to its destination. In this case it's a spark not a train.

Incentive launched a useful gadget in the shape of the *Azimuth 3000* — a device to cure the problems of tapes that will not load. It realigns the heads of the C2N Datasette — thereby preventing most of the problems associated with loading 64 cassettes.

SOFT AID LAUNCHED



Rod Cousens — the Bob Geldof of computer games.

Soft Aid — the computer games industry's answer to Band Aid — was launched at a trade show last month with a champagne reception.

Several bosses and programmers of software houses chinked glasses and wore Soft Aid T-shirts to pose for the cameras.

The official title list of the two compilation tapes has now been finalised. The 64 tape comprises *Gumshoe* from A&F, *Beam Rider* from Activision, *Star Trader* by Bug Byte, *Kokotoni Wilf* from Elite, *China Miner* by Interceptor, *Gilligan's Gold* by Ocean, *Fred* from Quicksilva, *Gyropod* from Task Set, *Flak* by U.S. Gold, and Virgin's *Falcon Patrol*.

The cassette is in the shops now at £4.99. Both cassettes contain the Band Aid single — 'Feed the World'.

Soft Aid organiser — Rod Cousens — told the reception that of the £4.99 cover price a minimum of £3 would go to the Ethiopian Famine Appeal for each tape sold.

Several other businesses have offered their services free to get this tape off the ground including W H Smith who are waiving their commission, distributors Microdealer UK who are shipping the tapes out to the shops, artist David Rowe who designed the cassette inlays, duplicators Kilt Dale, and EMAP — the publishers of this magazine — who are carrying advertisements for the tape at no cost.

Tapes are on sale now, so go out and buy one.

Shorts

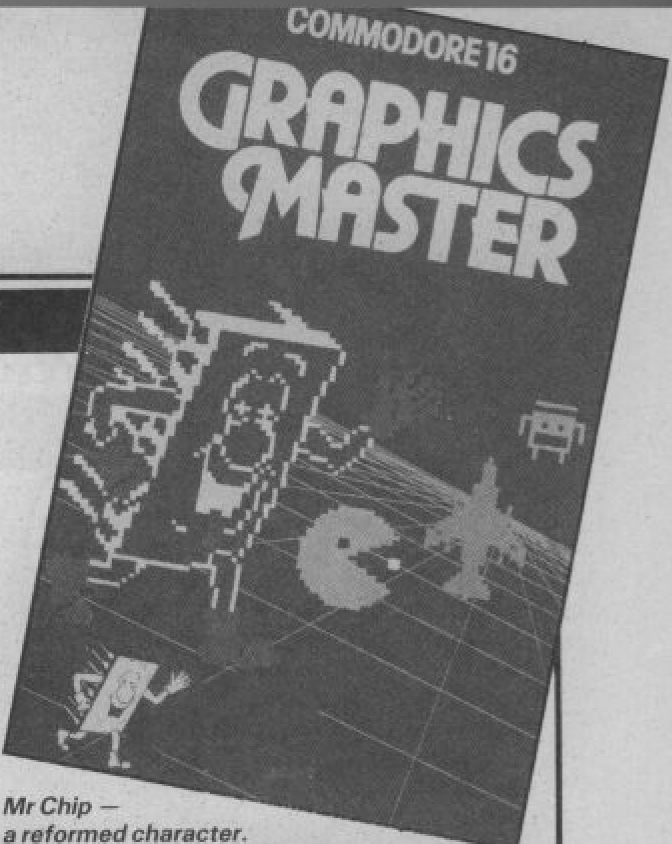
C-16 goes foreign: Audiogenic has announced Commodore 16 conversions of its *Gruneberg Linkword Language Courses* for the Vic and 64. At present, only the French and German courses are available. Costing £12.95 each, you get a computer program on tape or disk, an audio cassette to help you with pronunciation and an instruction manual. How does Linkword work? Well, the Spanish for bread is 'pan', so you'd imagine a pan full of bread. Geddit? *(Not really — Ed.)*

Shorts

Apprenticeship served: If you've been having sleepless nights trying to free incarcerated sorcerers since Virgin's *Sorcery* came out, you can forget about finding that all-important last screen. Once you've freed Fred, Bill, Joe, Frank et al you can get one more screen up. Someone has finally found it. It contains a plane and a message to the effect that two tickets for New York could now be claimed. Oh well, what with the falling pound we didn't bother claiming . . .

Shorts

PaperClip flip: big-gunning software house Ariolasoft has announced that it's struck a UK manufacturing and distribution deal with American Batteries Included, the company producing the *PaperClip* wordprocessing package for the Commodore 64. Since Ariolasoft will be manufacturing PaperClip (on disk) in the UK, it will be cheaper than the original, which costs around £80 — how much cheaper won't be decided until it appears at the beginning of June. Ariolasoft also has rights to the rest of Batteries Included range, so more cut-price products should follow.



Mr Chip — a reformed character.

GRAPHICS FOR THE 16

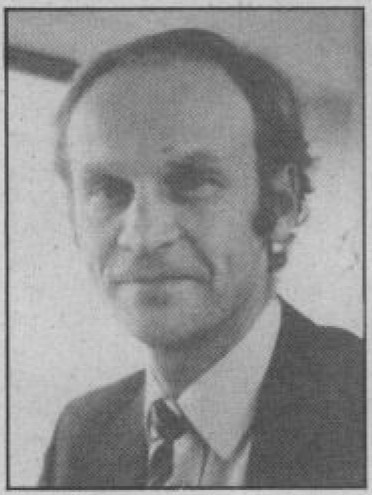
Mr Chip reckons it's probably the first company to produce a utility for the Commodore 16. The offering in question, called Graphics Master, comes on tape and sells for £7.50.

The program lets you redefine the Commodore character set and save the new graphics to tape or disk. The instruction sheet lists a short routine to incorporate your character data into your own program. There are three modes: character editor, input/output and multi-colour. As well as offering the usual editing commands there are facilities for scrolling, inverting and rotating characters. One nice touch is 'format' disk command which saves you looking up that maddening jumble of characters.

STANWORTH RESIGNS

Good news from Commodore UK is pretty hard to come by these days. Following hard on the heels of recent staff redundancies at the Corby plant and reports of dismal financial results for the second half of last year, comes news of UK General Manager, Howard Stanworth's, resignation.

Commodore is keeping tight-lipped about the whole affair, except to state that Stanworth tendered his resignation to Commodore US president and chief executive Marshall Smith, during a routine progress meeting in the UK. A spokesman added that "his parting is amicable on both sides", and stressed that Stanworth's leaving Commodore has little or nothing to do with the company's recent marketing decisions (last month we reported the halving of the Plus/4's price).



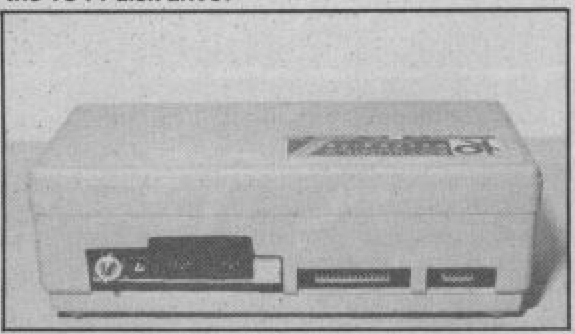
Howard Stanworth, who's next?

Arthur Scott, Commodore UK company secretary and financial controller, gets to sit in the big chair whilst Commodore looks for someone to fill the position. Again, nobody's giving anything away as to the runners.

WAFER DRIVE FOR VIC AND 64

Audiogenic is soon to launch the Entrepo micro wafer drive in the UK which is claimed to have fifteen times the performance of a cassette recorder and offer an alternative to the pricey yet sluggish 1541 disk drive. Moreover, at £79.95, Audiogenic reckons it will be "the hottest selling peripheral in 1985".

The Entrepo wafer drive — an alternative to the 1541 disk drive?





The Entrepo is very similar to the Rotronics Wafadrive (we're reviewing that next month) but contains only one drive unit. It uses magnetic tape but in an infinite loop form, contained within a 'wafer' the size of an average biscuit. Wafers come in 15K, 35K, 65K, 95K and 120K sizes. The smaller the capacity, the quicker the access time: so a 15K wafer will access data in around eight seconds, but takes around 43 seconds for the largest capacity. Two data transfer rates give optional speeds of 111.5 or 1750 bytes per second.

Included with the package is the operating system (on wafer) which makes the Entrepo act like a Datasette, accepting the usual commands. In fact, the device plugs into the cassette port and takes power from it. Two wafer drives can be daisychained and accessed individually by using a secondary address.

According to Audiogenic's Henry Smithson, the company has plans to make its range of Commodore 64 business software available on wafer — "but it's something that we've yet to finalise". Meanwhile, we wait for our review copy. More details on 0734 664646.

Shorts

Roger gets a rocket: Alligata is relaunching its *Rocket Roger* game despite admitting that first time round, it "did not achieve any noticeable sales penetration". Confused? Read on: "although the game was excellent it was extremely difficult to master and impossible to instantly review", explains Alligata. So Roger is set to live again, with a new presentation, an 'amateur level' and free poster — all for £7.95.

Shorts

Getting Centronics taped: SMC Supplies has produced a tape-based Centronics interface for the Commodore 64. Called the *Commodore Connexion*, it costs £19.95 and includes the connecting cable. Not much in the way of instructions, though, which point out that the device works in two modes. Normal mode "provides carriage control facilities for program listings and word-processing". The second mode "prints characters direct". More details on 01-441 1282.

Shorts

Third for Pascal: 1st Publishing is the third software house to have produced a disk-based Pascal compiler for the Commodore 64, which produces 6502 machine code — Oxford Pascal and Zoom Pascal being the only other products we've heard about. 1st's Pascal costs £34.99 and comes with a generous ring-bound manual. More details on 01-546 7256.

Shorts

Cheap words for Vic: Kingston-based Atlantic Software has announced a 50 per cent cut in the price of the American TOTL. TEXT 2.0 wordprocessor for the Vic. You can now buy it for just £7, on either tape or disk. The package supports the usual facilities as well as links to RS232 and Centronics printers — provided you have a suitable interface. More details from Atlantic Software, 28 Park Farm Road, Kingston, Surrey KT2 5TQ.

PROFILE: DAVID CRANE

In this month's Programmer Profile we look at the man responsible for much of Activision's success. Behind hit games like Pitfall and more recently, Ghostbusters, is David Crane.

Ever since computer games became popular, software houses have tried in vain to produce a game of a film that would sell well.

Some of the biggest names in the business have drawn a blank with this type of game. Thorn EMI couldn't pull it off with WarGames and Atari are reputed to have lost millions when they payed Stephen Spieldberg thirty million dollars for the rights to ET.

But now the duck has been broken. The game that made the breakthrough was Ghostbusters — and it has topped all of the games charts in the UK and the US.

The man behind the game is David Crane — America's best known computer games writer.

Crane started out in video games in 1978 writing games for Atari to run on their VCS. In those days the 64 and Vic 20 were still just a sparkle in Jack Tramiel's eye.

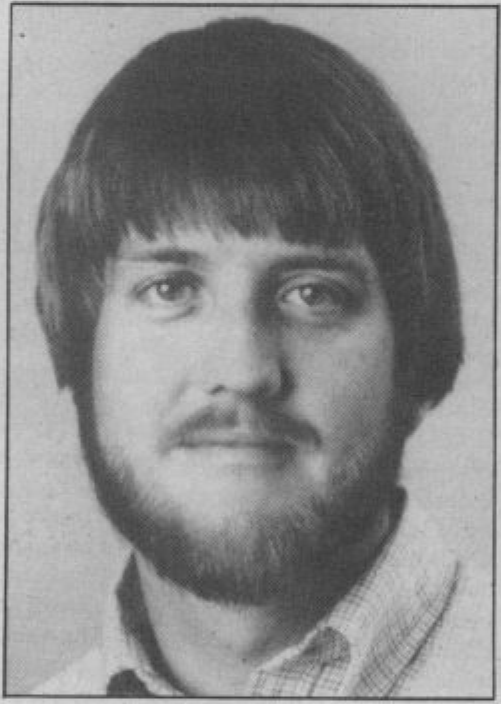
Now David Crane's work is almost exclusively for the 64. But his reputation in America is based on the VCS titles he wrote for Activision. Games like Pitfall 1 and 11 and Decathlon were all classics and Pitfall is reputed to have sold more than five million copies around the world. When Pitfall fever was at its height one American magazine suggested that Crane had earned more money from royalties on Pitfall than Michael Jackson had currently earned for Thriller.

Money is not a subject that Crane will be drawn on though. When I asked him how rich he was he replied that his job had made him "rich in experience". This guy has been interviewed before.

A softly spoken electrical engineering graduate from Indiana, Crane refuses to take all the credit for Ghostbusters. "The final game was the result of a group of four to five people." "We worked in a small room, all chipping in ideas, and discussing parts of the game. The talking bits of Ghostbusters were programmed by a separate company who specialise in speech . . . they are the same people who did the speech for Epyx's *Impossible Mission*.

Crane is also quick to acknowledge the designers of the film. "They came up with a film that was not only brilliant, funny, entertaining but was also ideally suited to a computer game" . . . "it has lots of action but is not full of stunts" . . . "its humour is also a major advantage you can put people into situations that will be convincing but at the same time they do not need to take their situation too seriously to enjoy playing the game."

Crane denies that their will be a Pitfall III but judging from the way his eyes lit up when I put the idea forward I think we can expect to see the conti-



nuing adventures of Pitfall Harry continuing for at least one more game.

More film games may be launched in '85. "We have people looking at new films all the time".

When David is not programming he likes to relax with a game of tennis. He's a real fan of the sport — and has reached a high standard in his own game. And what does he think of John MacEnroe? "Borg is my all time favourite tennis pro". Yep . . he's definitely been interviewed before.

NEWS

STOP PRESS · STOP PRESS

VICTUALS BLUNDER

Last month's 'Solitaire' Victual was not for the Commodore 16, as indicated, but for the Commodore 64.

Apologies to confused-frustrated-irate C16 owners — heads have rolled.

128 GETS IN-THE-BOX DISK

Even before the much-vaunted C-128 is formally launched, Commodore is already announcing a variation on the theme. Called the 128D, this upwards revamp will have a built-in 1571 disk drive, but no changes in the original 128 specification.

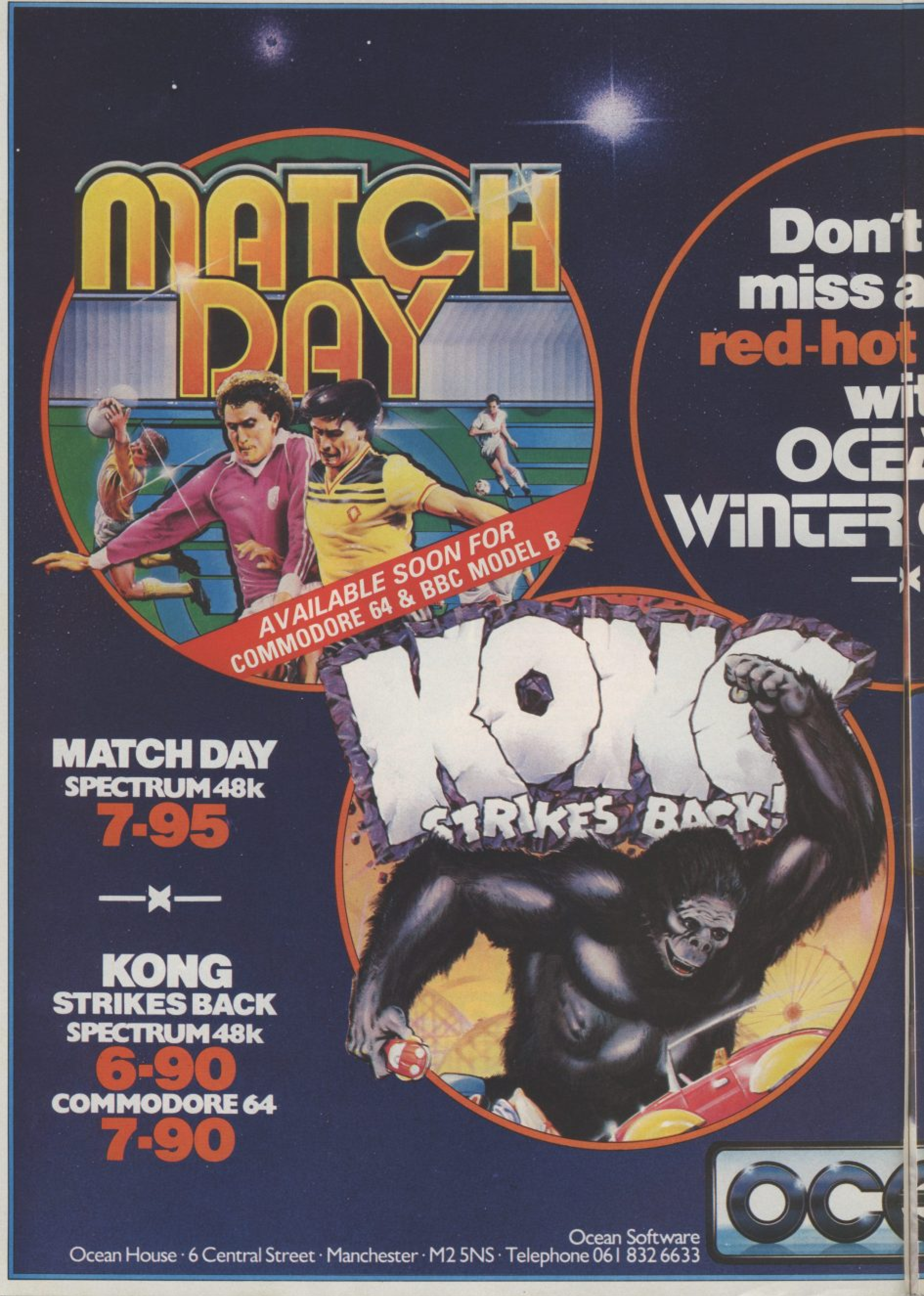
Trouble is, it looks nothing like the original machine, resembling more a business micro. It comes in two parts: the system box holding the regular 128 electronics and disk drive, and a separate cable-connected keyboard which clips on for portability.

According to John Baxter, Commodore's international marketing manager, the 128D will attract people wishing to take advantage of the CP/M operating system provided by the 128's Z80 co-processor: "If you want to run CP/M, you need a disk drive anyway".

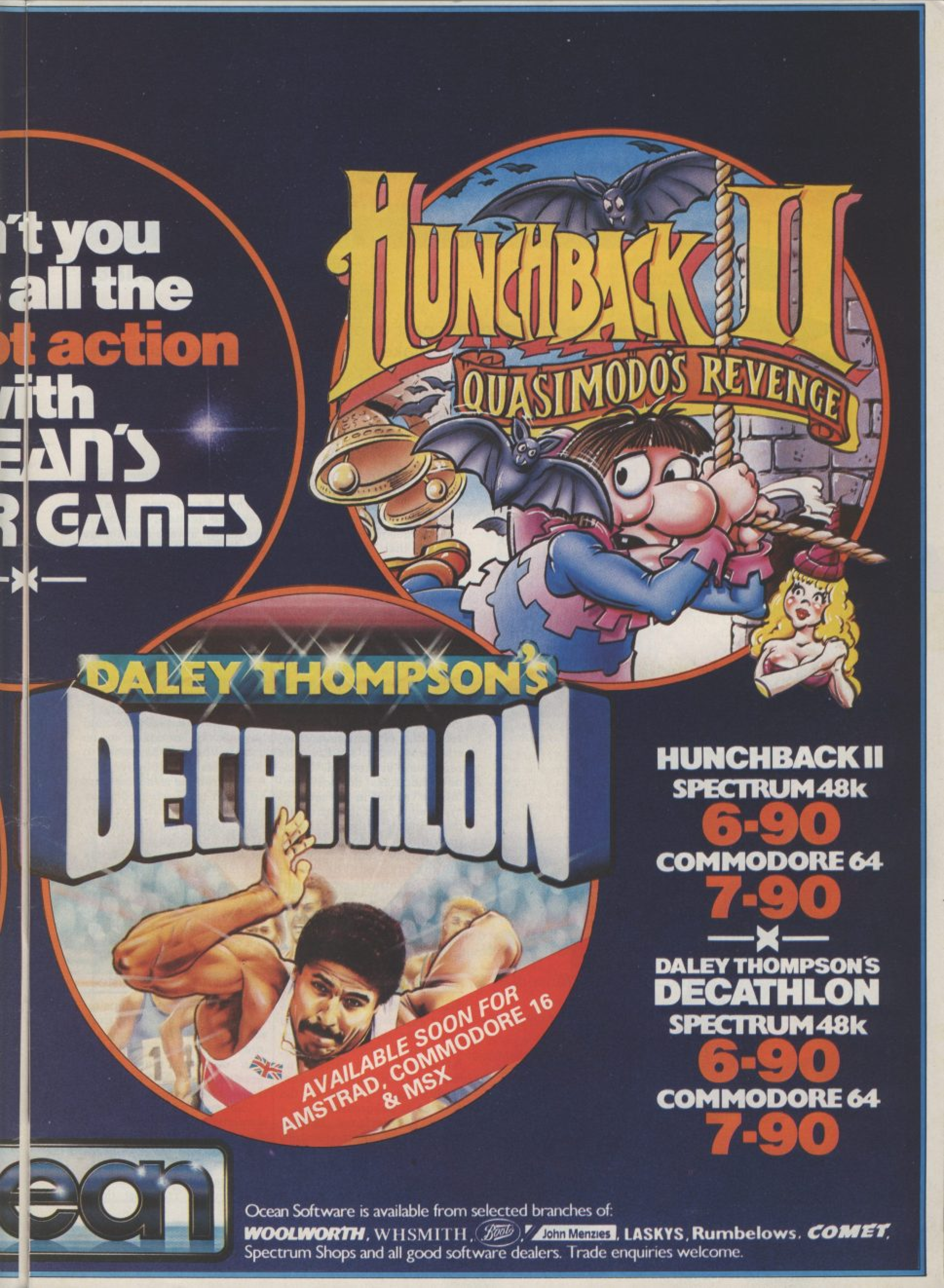


TONY SLEEP/PHOTOGRAPHER/MICROSCOPE

Moreover, the 128D should attract the new breed of 'serious user' which the micro is courting (almost as a last-gasp lifeline) with machines like Sinclair's QL and Atari's new ST series. But the real issue is the price. And Baxter is keeping tight-lipped on that, revealing only that the 128D will be slightly cheaper than a 128/1571 combo. It should be available around four weeks after the 128's launch at the end of July.



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BETTER SOUNDS FROM SID

How to enhance your music making

by Tom Jeffries



ILLUSTRATION: ANN LYNN

Here it is, the last part of our sound series. This month we look at ways to make SID produce better and more realistic sounds by looking at a few principles and making better use of those horrible POKE commands. There's also a great program for you to type in and listen to.

When synthesizers were being developed in the 1960s, there was a lot of talk about how they were going to imitate orchestral instruments so closely that the "real" instruments would be replaced. As it turned out, these fears were misplaced. The sounds produced by an acoustic instrument are so complex that it is almost impossible to synthesize sounds electronically that will fool our ears for very long.

Of course, that didn't stop the engineers. The latest machines make a digital recording of the acoustic instrument and modify the recording as needed. These new machines do not "synthesize" sound in the sense of creating it from its individual components, they take a previously created sound from memory and modify it to suit the situation. The best of them, I'm afraid, can be difficult to tell apart from acoustic instruments, which is rather distressing to the studio musicians who find work a bit scarcer these days.

SID in a spin

SID is based, however, on the older approach. It consists of oscillators that produce the raw sound (the waveform), Attack-Decay-Sustain-Release (ADSR) shapers that modify the loudness of the note as it progresses, and a filter to perform further modification of the sound. This set-up certainly seems complex enough when you are programming it, but in comparison with an acoustic instrument like a trumpet or a violin, it is really very simple.

The waveforms coming from the acoustic instrument are almost always much more complex than the triangle, sawtooth, pulse, or noise output of the oscillator; the loudness of the acoustic instrument can be varied constantly, as opposed to the 4-part set-up of the ADSR; and the sound of the acoustic instrument is modified in enormously complex ways by the physical properties of the instrument.

Well, so what? Does sound have to be complex to be good? Whatever happened to the virtues of simplicity?

The problem is that our ears are used to hearing complex sounds. Simple SID can very easily get boring or even irritating unless we use all of its facilities to provide variety and interest for the ears. Fortunately some resourceful programming can make the most of SID's abilities; by applying a couple of principles you can put a lot more life into your music.

Liven up your music

There are really two steps involved: first, carefully craft your sounds so that they are interesting and attractive, then combine them in interesting and varied ways. Here's how to go about it.

The most important three elements in the sound are the waveform, the ADSR or envelope, and the filter. **Program 1** illustrates going from a very raw sound to a useable bass sound. The first three ▶

Better sounds from SID



notes you hear use a square wave (rather like a bass clarinet, isn't it?) and a very abrupt full-on/full-off ADSR — not very attractive, mainly because of the ADSR. The next three notes have slower attack, but the sudden ending is still pretty annoying.

In the next three notes, the sound is considerably more pleasing, with a gentle decay after the attack to a moderate sustain level, followed by a slow release. The next three notes show what happens with a different pulse width. I'll explain the last series of sounds in Program 1 in just a minute.

There is no quick and easy way to figure out in advance just which ADSR combinations will work. Experience will help, but unless you are a lot better at this than I am you'll still need a lot of trial and error POKEing to get the sound just right.

(A note about pulse width: as you probably know, pulse width is set with two numbers, a coarse setting and a fine setting. You may not know that there are, for practical purposes, exactly 2047 possibilities, from 0, coarse and 1, fine, to 8, coarse, and 0, fine. 0, coarse and 0, fine produces no sound, and once you pass 8, coarse and 0, fine, you are really repeating settings you have already tried. [I'm a big help: "only" 2047 settings, indeed! Sometimes SID is an embarrassment of riches.])

In order to keep this article from turning into a book I'll leave the filter off in this program. As a matter of fact, I usually find the filter to be the most helpful on the melody line, and since the sound on most Commodore 64s seems to distort if the filter is used on all three voices, I generally do not use the filter on the bass line. Keep in mind, however, that once you have all three parts together, you will very likely want to go back and refine each voice some more.

Variety of sounds

Once you have created attractive sounds, you have to remember that even the nicest sounds become boring with repetition. Your music will reap enormous benefits from the use of variety. In fact, one of SID's greatest virtues (and

PROGRAM TWO

```
10 POKE53265,PEEK(53265)AND239:REM SHUT OFF SCREEN
20 S=54272:FORL=STOS+24:READDA:POKEL,DA:NEXT:REM INITIALISE SID
30 DATA96,22,0,1,0,35,166,195,16,0,1,0,35,166,48,4,0,8,0,35,166,0,15,244,31
40 FORAD=49160TO49202:READDA:POKEAD,DA:NEXT:REM MC LANG GATEROUTINE
50 DATA120,173,224,3,174,225,3,172,226,3,141,4,212,142,11,212,140,18,212,88,96
60 DATA206,224,3,206,225,3,206,226,3,32,8,192,238,224,3,238,225,3,238,226,3,96
70 POKE992,67:POKE993,65:POKE994,33:REM SET WAVEFORMS
80 POKES+18,33:FORT=15TO150:POKES+22,T:NEXT:POKES+18,32:POKES+22,90:POKES+14,112
90 POKES+18,33:FORT=1TO130:NEXT:POKES+18,32:POKES+14,180:POKES+18,33
95 FORT=1TO130:NEXT
100 POKES+18,32:POKES+22,1:POKES+14,251:POKES+18,33:FORT=15TO150:POKES+22,T:NEXT
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120 POKES+18,32:POKES+14,152:POKES+18,33:FORT=1TO140:NEXT:POKES+18,32
130 POKES+14,237:SYS49160:FORT=1TO180:NEXT:POKES+3,8:POKES+10,8
140 FORT=1TO80:NEXT:SYS49181:FORT=1TO170:NEXT:POKES+3,1:POKES+10,1
150 SYS49160:FORT=1TO80:NEXT:SYS49181:FORT=1TO170:NEXT:POKES+3,8:POKES+10,8
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180 FORT=1TO100:NEXT:SYS49181:FORT=1TO270:NEXT:POKE992,17:POKE993,17
185 A=50:B=37:C=31:POKES+6,249:POKES+13,249:POKES+20,249:POKE994,17
190 POKES,60:POKES+1,A:POKES+7,162:POKES+8,B:POKES+14,165:POKES+15,C
200 SYS49160:FORT=1TO200:NEXT:SYS49181:FORT=1TO21:A=A-1:B=B-1:C=C-1:POKES+1,A
210 POKES+8,B:POKES+15,C:NEXT:POKES+14,48:POKES+15,4:POKES+20,242
215 POKES,119:POKES+1,7:POKES+7,251:POKES+8,4:POKES+6,165:POKES+13,165
217 GOSUB220:GOTO280
220 POKES+18,65:FORT=1TO170:NEXT:POKES+17,1:FORT=1TO75:NEXT:POKES+18,64
230 FORT=1TO170:NEXT:POKES+17,8:POKES+18,65:FORT=1TO75:NEXT:POKES+18,64
240 FORT=1TO170:NEXT:POKES+17,1:POKES+18,65:FORT=1TO75:NEXT:POKES+18,64
250 FORT=1TO170:NEXT:POKES+17,8:POKES+18,65:FORT=1TO75:NEXT:POKES+18,64
260 FORT=1TO170:NEXT:POKES+17,1:POKES+18,65:FORT=1TO75:NEXT:POKES+18,64
270 FORT=1TO170:NEXT:POKES+17,8:POKES+18,65:FORT=1TO75:NEXT:POKES+18,64:RETURN
280 POKES+4,33:POKES+11,33:FORT=1TO300:NEXT:POKES+4,32:POKES+11,32
290 POKES,97:POKES+1,8:POKES+7,152:POKES+8,5:X=25:Y=18:Z=15
```

```
                              PROGRAM 1
10 REM:
20 SID=54272:FORL=SIDTOSID+24:POKEL,0:NEXT:POKESID+24,15
30 POKESID+1,8:POKESID+3,8:POKESID+6,240:REM SET PITCH, PULSE WIDTH AND ADSR
40 GOSUB 100:REM PLAY NOTE THREE TIMES WITH "SQUARE" ADSR
50 POKESID+5,70:GOSUB100:REM SLOW DOWN THE ATTACK
60 POKESID+6,121:GOSUB100:REM CHANGE SUSTAIN AND RELEASE
70 POKESID+2,110:POKESID+3,0:GOSUB100:REM TRY IT WITH A DIFFERENT PULSE WIDTH
80 POKESID+6,248:GOSUB200:POKESID+4,32:END:REM DIFFERENT WAVEFORMS
100 FORN=1TO3:POKESID+4,65:FORT=1TO500:NEXT:REM TURN NOTE ON THREE TIMES
110 POKESID+4,64:FORT=1TO500:NEXT:NEXT:RETURN:REM AND TURN IT OFF THREE TIMES
200 FORN=1TO20:POKESID+4,33:FORT=1TO50:NEXT:REM CHANGE WAVEFORMS WITHOUT
210 POKESID+4,65:FORT=1TO50:NEXT:NEXT:RETURN:REM GATEING OFF FOR FAST NOTES
```

he needs every one he can get) is the fact that you can program in as many changes as you want. Even most professional synthesizers do not have this potential for flexibility.

Obviously, it is very important to be able to change the settings in the SID chip at any time. Waveform changing is particularly useful. For example, you can write one section of a piece with the sawtooth or pulse waveform in all voices, then use the triangle waveform for a contrasting section or even an "echo" effect. I don't use the triangle wave very much except as contrast, since it is a rather thin sound and can become irritating quite quickly, but those very qualities make it useful for contrast with the more robust sawtooth and pulse waves.

More subtle effects can be achieved by going between sawtooth and pulse waves. For example the sawtooth waveform makes a good, solid bass sound. I have often found it useful to use the sawtooth wave on beats one and three of each bar, with an ADSR similar to a string bass, and a pulse wave on beats two and four, creating the effect of two different instruments using only one voice.

Line 80 in **Program 1** illustrates another useful technique. Normally, each note has to be gated on and then off before the next note can start. By changing the waveform without gateing off, you get the effect of a new note without having to gate off, in addition to introducing some variety. Notice how Line 230 of **Program 2** uses this technique.

Sid Sawtooth plays on

Program 2 is a whimsical look at the capabilities of the Commodore 64, and I think it illustrates some techniques that anyone can use.

When I wrote the piece I was trying to find ways to eliminate the bad rhythm inherent in programming in Basic. To that end I shut off the screen display in **Line 10** and turn it back on in **Line 700**. If you press RUN/STOP while the program is running you will be left with a blank screen and have to type in blindly **POKE 53265, PEEK (53265) OR16** and press RETURN to get the screen display back.

How it all works

The little machine-code program at the beginning causes the notes to start as close together as possible. POKE statements are slow enough that you can often hear the time between the first and the last note, especially if the computer performs an interrupt in the middle. **POKE 992** with the desired waveform for *Voice 1*, **POKE 993** with the waveform for *Voice 2*, and **POKE 994** for *Voice 3*; then **SYS 49160** to turn all three voices on and **SYS 49181** to turn all three voices off.

I wanted to start with a "wah" sound in the bass like the "wah-wah" pedal sound on a guitar, so I used a loop to change the filter setting in *lines 80* and *100*. Notice the pulse width changes in *lines 230-270*, and the frequent waveform changes (look for **POKEs** to **992-4**).

There are as many other techniques for varying the sound on the Commodore 64 as your imagination can come up with. Each of the three articles that preceded this one provides some ideas, like vibrato, or using ring modulation or hard sync. It takes a little extra effort to write great-sounding music on the 64, but I think it's worthwhile. Remember to start out with good sounds, and then vary them often, subtly within sections of a piece and dramatically between sections. And remember: experiment! □

```
300 POKES+4,33:POKES+11,33:FORT=1TO100:NEXT:POKES+4,32:POKES+11,32
310 FORT=1TO180:NEXT:POKES+14,35:POKES+15,3:GOSUB220:POKES+11,32
320 POKES+18,33:FORT=1TO100:NEXT:FORX=3TO255STEP2.5:POKES+15,X:NEXT
350 POKES+14,48:POKES+15,4:GOSUB220:POKES,251:POKES+1,4:POKES+7,247:POKES+8,9
360 POKES+4,33:POKES+11,33:FORT=1TO300:NEXT:POKES+4,32:POKES+11,32
370 POKES,97:POKES+1,8:POKES+7,152:POKES+8,5:X=25:Y=18:Z=15
380 POKES+4,33:POKES+11,33:FORT=1TO100:NEXT:POKES+4,32:POKES+11,32
390 FORT=1TO180:NEXT:POKES+14,35:POKES+15,3:GOSUB220
400 POKES+6,249:POKES+13,249:POKES+20,249
410 POKES,30:POKES+1,X:POKES+7,209:POKES+8,Y:POKES+14,210:POKES+15,Z
420 POKES+3,8:POKES+10,8:SYS49160:FORT=1TO200:NEXT:SYS49181:FORR=1TO15
430 X=X-1:Y=Y-1:Z=Z-1:POKES+1,X:POKES+8,Y:POKES+15,Z:NEXT:POKES+20,241
440 POKES+14,48:POKES+115,4:GOSUB220:POKES,251:POKES+1,4:POKES+7,125:POKES+8,2
450 POKES+4,33:POKES+11,33:FORT=1TO250:NEXT:POKES+6,242:POKES+13,242
455 POKES+4,32:POKES+11,32:FORT=1TO10:NEXT
460 POKES,97:POKES+1,8:POKES+7,152:POKES+8,5
470 POKES+4,33:POKES+11,33:FORT=1TO100:NEXT:POKES+4,32:POKES+11,32
480 FORT=1TO180:NEXT:POKES+14,35:POKES+15,3:GOSUB220:POKES+18,32:POKES+23,244
490 POKES+6,247:POKES+13,247:POKES+20,247:A=200:B=150:C=126:FORT=1TO30:NEXT
500 POKE992,17:POKE993,17:POKE994,17:POKES+18,65:FORT=20TO120STEP2:POKES+22,T
505 NEXT:FORT=120TO20STEP-2:POKES+22,T:NEXT:POKES+18,64:FORT=1TO100:NEXT
510 POKES,165:POKES+1,A:POKES+7,96:POKES+8,B:POKES+14,225:POKES+15,C
511 POKES+23,4:POKES+22,220
520 SYS49160:FORT=1TO100:NEXT:FORT=1TO186:A=A-1:B=B-.75:C=C-.63:POKES+1,A
530 POKES+8,B:POKES+15,C:NEXT:POKES+1,31:POKES+8,22:POKES+15,8:FORT=1TO100:NEXT
540 SYS49181:FORT=1TO30:NEXT:SYS49160:FORT=1TO100:NEXT
550 SYS49181:FORT=1TO180:NEXT:SYS49160:FORT=1TO75:NEXT
560 SYS49181:FORT=1TO180:NEXT:SYS49160:FORT=1TO75:NEXT
570 SYS49181:FORT=1TO180:NEXT:SYS49160:FORT=1TO75:NEXT:SYS49181
580 FORT=1TO40:NEXT:POKES,135:POKES+1,33:POKES+7,31:POKES+8,21:POKES+14,97
590 SYS49160:FORT=1TO70:NEXT:SYS49181:FORT=1TO550:NEXT:POKES,15:POKES+1,67
600 POKES+7,135:POKES+8,33:POKES+14,48:POKES+15,4:POKE992,33:POKE993,33
610 POKE994,33:SYS49160:FORT=1TO100:NEXT:SYS49181
700 POKE53265,PEEK(53265)OR16
```



by Robert Schifreen

First this month, a letter from the Arch Wizard, Richard Bartle. Richard, who wrote most of the multi-user adventure MUD, is currently lecturing at Essex University, on whose DEC 10 mainframe the game runs.

In February's column I mentioned a version of MUD running in Olso. Contrary to recent stories, Richard is fully aware of the system being run there. They asked for a copy and he gave them one. Additionally, he adds, any educational institution may have a copy of the MUD system, on application to Richard at Essex University. Three colleges/universities currently have bona fide copies and one university who I'll not name has an illegal one. However, these systems are open only to students.

Thanks for clearing up that point, Richard. I don't suppose there's any chance of the odd point or two?

BORED WITH MICROBOARD?

Timefame's Bulletin Board on Prestel page 8181 is now back in action, following their acceptance of Prestel's promise that their security was not actually breached within minutes of their ID being changed after the last, er, breach.

However, "Screwdriver", the editor/censor of the board seems to be taking a back seat at the moment and has handed over to "Rawplug". It is generally accepted that the Timefame MicroBoard is not yet another version of Micronet's Chatline and any messages which do not adhere to Timefame's standards will simply not appear. Additionally, the software which runs MicroBoard can be programmed to reject all messages sent from certain people.

So, if you say something which Timfame don't like, you are banned from their area. Personally, I think this goes totally against the idea of bulletin boards being open to all. If MicroBoard is supposed to be a technical area for a fast exchange of problems and solutions then it isn't actually working. The customers seem to prefer a general chat facility, so why not let them have one? If Timefame would care to answer, I'm sure that we could squeeze in their letter next month.

WHAT'S GOING ON AT COMPUNET?

Official words from Compunet put its membership figures at around 3,500 as at the end of January 1985. Further evidence of a lack of excitement on the database comes from a statement that the average Compunetter logs on for around ten minutes per session. This compares with around half an hour on Micronet, though users of the latter system do have the whole of Prestel to peruse too.

The exception to the Compunet figures are MUD users, who tend to get hooked for around an hour at a time.

Compu Store has recently opened on Compunet, offering Commodore modem owners a choice of over 10,000 items which can be ordered on-line. Still no word of the homebanking facility about which so much was said at the launch. A formal statement, revealing the name of the High Street bank concerned, is expected soon. After that, a limited home banking service is promised, with "the main feature" not coming for some time after that. Quite what the main feature is, I wasn't told. Asked whether it would beat Homelink, the spokesperson said I'd have to wait and see. I will.

Incidentally, Viewtel, whose electronic daily newpaper on Prestel page 2020 attracts a large number of accesses, has now launched a Compunet edition.

Want to contact the Happy Hacker? He's on Prestel page 6001880. Or you can leave a message for him on the VISA Prestel-standard bulletin board, between 8am. and 11pm. on 01-958 7098. No good? How about American People/Link, using the 'Hex Maniac' ID, or Compuserve, using 74106, 1637? Failing all that, you could just write to him at: Commodore User, 30-32 Farringdon Lane, London EC1 3AU.

SOFT DOWNLOAD

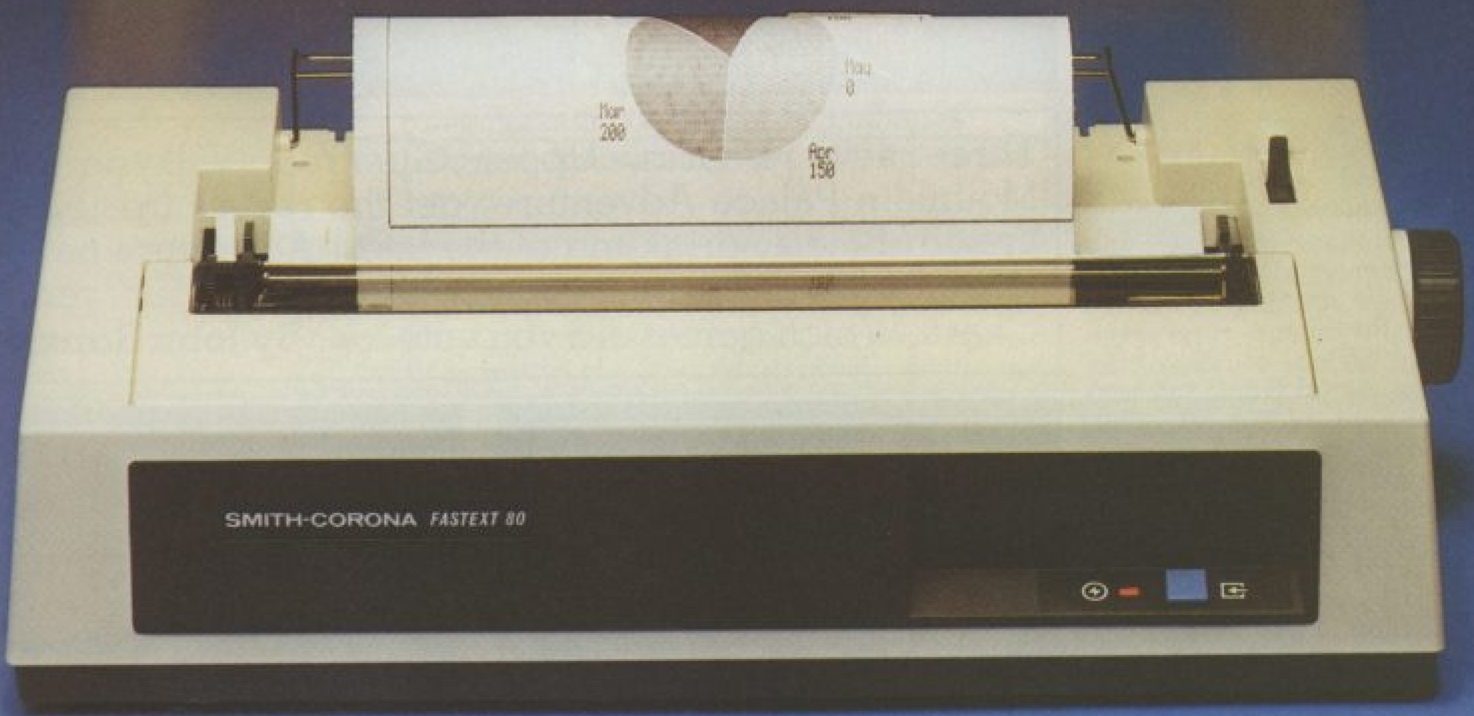
There are two conflicting stories about telesoftware for Commodore modem owners. Micronet's Commodore area states that their programs will work only with the OEL comms cartridge, which implies that Compunet modem owners can't download software from Micronet. However, Compunet claims that their viewdata software (which you download from Compunet to allow you to access Prestel with the Compunet modem) will allow your 64 to download from Micronet. I tried downloading from Micronet on a Compunet modem recently, and it didn't work. Let's hope that they can sort out their differences soon. I for one don't intend to buy two modems.

SNIPPETS

- Channel 4 have jumped on the micro bandwagon with a series called "4 Computer Buffs". I'm not sure whether this is the title of the programme, or the anticipated viewing figures.
- Database, Thames TV's micro programme which has just started a new series, was to have launched a bulletin board system on Prestel in association with Homelink, and running on a gateway computer. Access was to be made available to all, on a special free Prestel ID. However, just minutes before filming of the programme, Prestel changed its mind. At the time of writing, the first episode has been filmed, telling viewers the free ID to use and what page to call. However, it won't actually work.
- Following Prism's demise last month, the VTX 5000 modem for the Spectrum has been reduced to £70. If price reductions on Prism's other modems follow, this should please Commodore owners wanting to access Micronet's Commodore area.

What's on Micronet and Compunet

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South West: CK Computer Supplies, Unit 5, Norside, Old Mixon Crescent, Weston-Super-Mare. Tel: 0934-418838.
Shropshire: Jentech Services Ltd., Smithfield Centre, Whitbury Street, Bridgnorth, Shrops. Tel: 07462-61458.
West Midlands: Daytron Ltd., Warwick House, Forge Lane, Minworth, Sutton Coldfield. Tel: 021-351 5969.
North East: Intac Data Systems Ltd., Frost House, Woodhouse Green, Thurcroft, Rotherham. Tel: 0709-547177.
Manchester: Mancos Computer Services, Unit 3, Albany Road Trading Estate, Manchester. Tel: 061-861 0757.
Merseyside: Rockcliff Microcomputers, 2 Rumford Street, Liverpool L2 8SZ. Tel: 051-227 2568.
Scotland: Chessbourne Ltd., 44 West Henderson Wynd, Dundee. Tel: 0382-29166.
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ADVENTURE



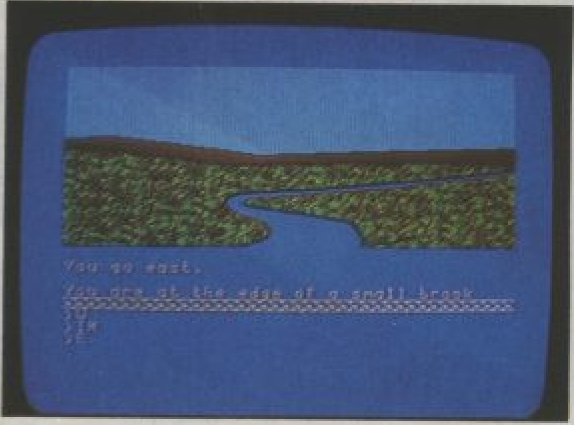
Three new releases, Upper Gumtree, Valkyrie 17 and Mountain Palace Adventure, get the review treatment this month. Plus a sprinkling of the latest Adventure news. Not forgetting our regular competition and your very own Chart. Which games did you vote for? **By John Ransley**

Take one crazed scientist and a whacky invention and what have you got? Up until now, you might have had the germ of a Marx Brothers movie or maybe a Daffy Duck cartoon — but these days, you're talking software. In a way, this theme is shared by both **Upper Gumtree** (Richard Shepherd, £9.95/£11.95 disk) and **Valkyrie 17** (Ramjam Corporation, £9.95) — and their contemporary scenarios certainly do make a change from the dungeons or deep space which constitute the backcloth (of fading interest) to so many adventures.

Although I didn't go overboard for author Peter Cooke's last success, Urban Upstart, I know from dozens of conversations and letters that it's given much pleasure to almost all who have played it. But as a delicate child who sometimes found the less happier tales of Enid Blyton somewhat distressing, the Mohican-haircut humour of Upstart almost had me flinching from the screen on occasions.



Lost in Upper Gumtree, the sequel to Urban Upstart.



Beat the Nazi conspiracy in Valkyrie 17.

Barking Upper Gumtree

Upper Gumtree seems certain to find an equally large following. The storyline hinges on a certain Professor Blowitovitz and his threat to zap zee verld from the safety of the most boring village in the universe. But all that changes when the night sky fills with shadowy forms, noses glow in the dark, and Tuesdays disappear completely. Sounds fun — and why anyone should want to thwart the Prof beats me. Anyway, that's your quest, and you've got some quickly-drawn and fairly pleasing graphics, which flip to a text screen containing more info at the touch of a key, to help you.

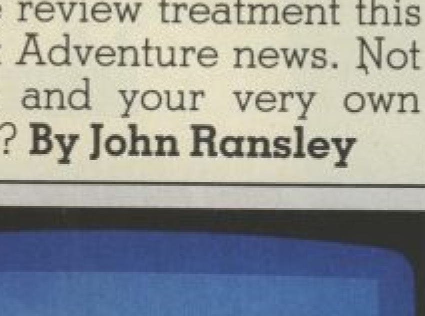
The game plays in real time (though you can freeze this if you want a break), and various other thoughtful features make Gumtree a real pleasure to explore. For example, multi-command sentences are accepted, you can specify the text/background colours, repeat commands with one keystroke, and check not only your own inventory but also that of Emma and Sally — a pair of rather picaresque characters who'll help and hinder you as you play.

You'll find it particularly worthwhile making a decent map and frequent SAVEs — not least because when you eventually fathom the solution, you might make it to be one of the ten players who will each month receive the Gumtree Gamer Award.

Even without that gimmick, I'd dig into my pocket for a copy of Upper Gumtree — and if the dastardly Professor somehow survives (as I suspect he will) then I wouldn't be surprised to see him become something of a cult figure and the central character in at least a couple more titles from the same author.

NEWS • ADVENTURE NEWS • ADVE

A deluxe disk version of the Hobbit is now in the shops for the 64. On sale at £17.95 the game includes forty new graphics screens including this beautiful view of Rivendell. It also has music and sound effects.



Questprobe 3
The follow up to the Hulk, and Spiderman will be based on the Fantastic Four. Only two of the characters will feature in the first game — the Human Torch and the Thing. The program is being held back until June to give Adventure International time to launch Gremlins.

Sherlock Solved
Two Morpeth brothers have picked up £170 worth of 64 books and software for being the first people to solve Sherlock — the whodunnit adventure from Melbourne House.

Adventure Talkies
Four talking adventure games are about to be launched for the 64 — Alien, Skull Island, Ninja, and Murder on the Waterfront from a new St Albans company called Step One Software.

TOP 10 ADVENTURE CHART

1.	(1)	**Castle of Terror** *(Melbourne House, AnA, £9.95)*
2.	(9)	**Spider-Man** *(Adventure International, GrA, £9.95)*
3.	(8)	**Return to Eden** *(Level 9, GrA, £9.95/£11.95 disk)*
4.	(—)	**The Lords of Midnight** *(Beyond, GrA, £9.95)*
5.	(—)	**Valkyrie 17** *(RamJam Corporation, GrA, £9.95)*
6.	(4)	**Eureka!** *(Domark, AnA, £14.95)*
7.	(—)	**Pettigrew Chronicles** *(Shards, GrA, £9.95)*
8.	(10)	**Sherlock** *(Melbourne House, GrA, £9.95)*
9.	(—)	**Pirate Cove** *Commodore/Adventure International, TA, £9.95 C16 cartridge)*
10.	(—)	**Ripper!** *(Eclipse/Longman, GrA, £12.95 disk only)*

Chart action this month sees the long awaited 64 version of Mike Singleton's hugely innovative graphic epic soar straight in at No.4, with Valkyrie 17 (reviewed this month) close behind. Other new entries include, not surprisingly, a C16 cartridge version of a Scott Adams classic. By the way, AnA means animated adventure, GrA means it's graphic and TA means it's text-only.

If you'd like to take a hand in compiling our Top Ten, simply list the names of your three favourite adventures in order of preference (together with your Bad Load vote for the worst you've played so far) on a postcard and send it to Valley Top Ten, Commodore User, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. You don't need to enter the competition to vote, and you can vote every month, if you like.

Mountains and molehills

John Ryan's **Mountain Palace Adventure** (Duckworth, £7.95) is a creditable attempt by a newcomer to win his spurs in text adventure authorship; he probably deserves half the pair for now, and the other when he devises something a little more imaginative.

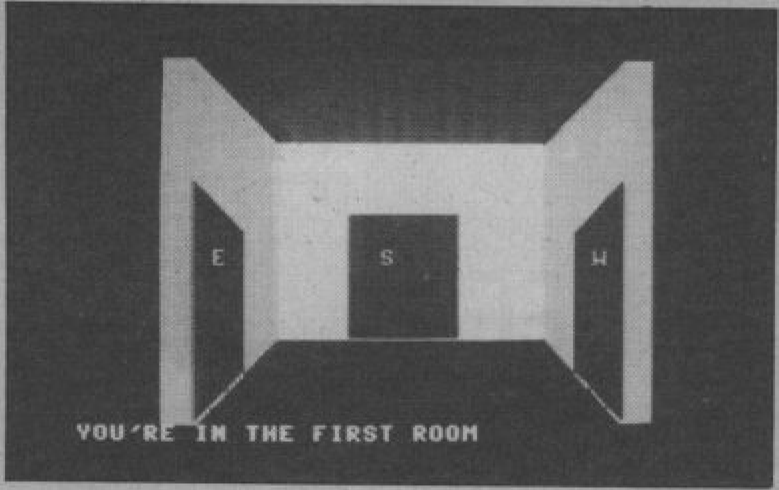
The trouble is, the "You must penetrate an impenetrable castle to rescue the beautiful princess" type of plot really is wearing a bit thin by now. And although Mountain Palace is quite nicely structured (I believe it owes much to the lessons taught in Pete Gerrard's guide from the same publisher), and the author does his best to jazz up the screen display with plenty of colour, John Ryan is definitely short on the kind of atmospheric adjectival phrases which make the descriptions in Colossal Adventure or Zork so entertaining.

Having said that, I'd rate this title an excellent choice for younger players, who often don't have the patience to absorb great lumps of purple prose. On that basis, Mountain Palace whips along at a cracking pace and is thus ideal for the sub-teen who wants to jam exploring a few score locations between tea and the cub meeting/disco/homework.

Just Valkyrie 17

Valkyrie 17 is a little less flippant but equally professional in its presentation. One side of the turbo-loading tape carries an audio track comprising messages recorded on an answering machine. Study these — and the various documents that come with the game — before you begin. Then sit down and go quietly mad trying to escape from the bill-waving manager of the Glitz Hotel, so that you may begin your mission of tracking down the sinister cell of ex-Nazis who seem to have something mighty nasty up their tunics.

There's much to like about Valkyrie. The graphics aren't highly detailed but compensate by being colourful and quickly drawn, and they're backed up with intelligent text. You won't find any shortage of locations or challenges (many of them *extremely* perplexing) and a nice air of black humour pervades the whole while. Oddly, there's not a mention to be found of the author(s) responsible for this glorious hokum, but on the strength of Valkyrie 17, he, she or they must surely be on the way to a place in the adventure hall of fame.



Which door? An early puzzle in Valkyrie 17.

Incidentally, just so you can prove that you, too, have come face to face with Valkyrie 17 and lived to SAVE your position (unlike the hapless agent whose last words your answering machine has captured), the goodies in the box include a metal badge that should get you a few free drinks at many bars in Bolivia. Pretty useful, eh?

Lightning up time

Basic Lightning, the least expensive and most accessible in a new trio of language extensions from Oasis Software, is good news for adventure programmers. The 100 new commands it adds to Basic 2.0 include structured programming, named procedures, simplified music and sound effects, easy hi-res graphic windows with scrolling text, and up to 263 sprites.

It also permits virtually simultaneous execution of up to five separate tasks, which should allow the imaginative programmer to devise some amazing animated adventures featuring continuous music and sound effects. Unlike some games-writing languages, such as Scope, it permits full string-handling.

Basic Lightning costs £14.95 or £19.95 on disk, and must be in memory when running any programs which use its commands. However, Oasis plan to launch soon an inexpensive compiler which will permit the production of stand-alone copies of Basic Lightning programs.

Competition

There's a double prize on offer in this month's ludicrously easy (?) competition — a mint copy of Bob Chappell's useful and entertaining puzzle-solver, *The Commodore 64 Adventurer*, plus the fastload cassette version of Peter Cooke's new graphic adventure, *Upper Gumtree*.

This month's puzzler is: **what do Adventure International and the Antarctic have in common?** Write the single word that answers this question together with your name and address on a postcard and mail it to Into The Valley, Commodore User, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Entries should reach me not later than 26th April.

Remember to add three votes for your favourite adventures, to help in compiling our Top 10.

Congratulations to John Boucher of Hanham, near Bristol, for submitting the best program tip (his entry will appear in a future issue) and to Stephen Brown of Felling in Tyne and Wear for correctly guessing what Sherlock Holmes and The Goons had in common . . . a character named Moriarty.

BAD LOAD OF THE MONTH

Ring of Power (Quicksilva, GrA (well . . .), £9.95 — also on Select One compilation.

U.S. MAIL

WHAT'S WRONG WITH COMMODORE?

Dan Gutman reports

Hey, did you know that there are five times as many computers per capita in *your* country than there are in *my* country? It must be true, I read it in the *New York Times*. They did a whole article on the Acorn "Beeb", which we Yankees had never even heard of before.

Nice to see you all again. I wish I could greet you with happier news, but I can only report what's happening. After driving Mattel, Sinclair, Texas Instruments out of the computer business, bringing Atari to its knees, and achieving total domination of the computer industry over here, Commodore has finally stumbled. International earnings for the last quarter of 1984 dropped 97% from 1983! What happened? What's going on? What's going to happen?

As your own Douglas Adams says, "Don't Panic!". It looks like Commodore got caught in another Jack Attack. As soon as Mr. Tramiel took over Atari, he slashed the price of their 800XL computer. It began selling, and the Commodore 64 started fading. Commodore didn't reduce the price of the 64 to match Atari, although they finally did a few weeks ago in the USA — to $150. A few years ago the 64 was selling for over $600 here.

The price is right?

Meanwhile, an unusual trend has been happening in America — people have begun to buy more *expensive* machines and abandon the low cost Ataris and Commodores. Apples and IBMs are zooming. Commodore doesn't *have* any expensive machines to replace the 64.

The Plus/4 finally came out around Christmastime, but it's not selling so hot. A lot of people are complaining that the built-in software isn't very good, there isn't any other software available, and the joystick ports are incompatible with any other in the world. Besides, it just doesn't *look* like a very sophisticated machine, you know what I mean? The thing is black, like a video game systems. Nowadays, computers are white or off-white, at least in America. What colour are *your* computers, anyway?

Movement of the people

Meanwhile, 25 top Commodore employees have left the company to join Jack at Atari, including software wiz Sig Hartmund. The running line is that Atari and Commodore have changed personalities, and some people are calling Atari "Commodore West". Is Jack going to do to Commodore what he already did to Mattel, TI, and Sinclair?



Digital pictures of the one you love. Change those features you don't care for or simply run off next year's Christmas cards.

I wouldn't bet on it. It will be tougher for him this time around. Commodore may be slipping right now, but the new C-128 will be coming out by the time you read this, and the Amiga should be out by the end of the year. The industry is still buzzing about that one. The latest rumours say it will be Apple compatible and use windows and a mouse like the Macintosh. I saw the graphics myself, and they *are* phenomenal. The secret is three little chips codenamed "Agnes", "Daphne" and "Portia". The big computer war I referred to last time may actually be fought between Commodore and Apple, rather than Commodore and Atari. Jack's got a couple of hot computers of his own coming out, but he's in the middle of trying to rebuild Atari from the rubble.

Digitize eyes

Anyway, back to the real world of things that exist *today*. You can talk about all these future products until the cows come home (that's one of *our* expressions), but you can't process a single word or play a single game on them. There's some really cool new products that you should know about. "Digitizers" are getting very big on these shores. A digitizer is a simple device that interfaces a computer and any video source (such as a video camera, video cassette recorder, or videodisc player).

You can, for instance, point your video camera at somebody's face, and see that face appear on your computer screen in digital form. It's wild. The picture on the screen isn't quite as sharp as a regular photograph, but you can manipulate it. You can draw on a moustache or change your hairstyle to see what you'd look like. You can take the photo and drop it in the middle of your word processing file to jazz up your term papers. You can use it to make your own greeting cards or photo I.D. cards.

A company called **Digital Vision** makes a digitizer for the Commodore 64 (and Apple II too) called *Computereyes* that sells for $130. They'll send you more information if you write to them at: 14 Oak St., Suite 2, Needham MA 02192.

Hard disk for 64

Also, a lot of people over here are saying that 1985 is "The Year of the Hard Disk Drive". I don't have one, but everyone I talk with says that after using a hard disk, you'll never touch a floppy again. Well, good news, Commodorians — the first hard disk for the 64 is now available.

A small company called **Computer Specialties** has unveiled a ten megabyte drive (model number CSI ST 10C) that is compatible for all Commodore computers, they claim. It's designed to use the serial or IEEE Commodore data transfer bus, and features built-in backup mode, reformat protect, and get this — it stores 50,000 pages of text on a single disk! That's a few file cabinets, huh? The only bad thing is the price — $1,595. Still interested? Write for more info to: CSI, P.O. Box 1718, Melbourne, Florida 32902.

Something else you might be interested in is *Cartridge-Maker 64*. This little box plugs into the cartridge slot on the back of your Commodore 64 and can be used to create cartridges. You can take a program you've written and transfer it onto a cartridge, take a cassette or disk program and transfer it onto a cartridge, even transfer the program from one cartridge onto another cartridge! The cartridges can be erased and used over and over again. The complete kit costs $189, and five blank 16K cartridges costs $115. Write to: Custom Programming Group, 47 Marchwood Rd., Suite 2A, Exton, Pennsylvania 19341 for more information.

See you next time! □

PLA



UNDER £100
Little and large — Commodore's Music Maker and LVL's Echo 1 keyboard fall into the sub-£100 range

COMMODORE 64 KEYBOARDS REVIEWED

You all know about the Commodore 64's near legendary sound-producing qualities. But getting at them and controlling them to make music has always been a problem. Now, a whole range of add-on keyboards is available for the 64, complete with music-making software. So you just plug in and play. Fred Reid has exercised his fingers on five keyboards ranging from the cheapo Commodore Music Maker to the expensive and professional-looking Microsound 64.

by Fred Reid



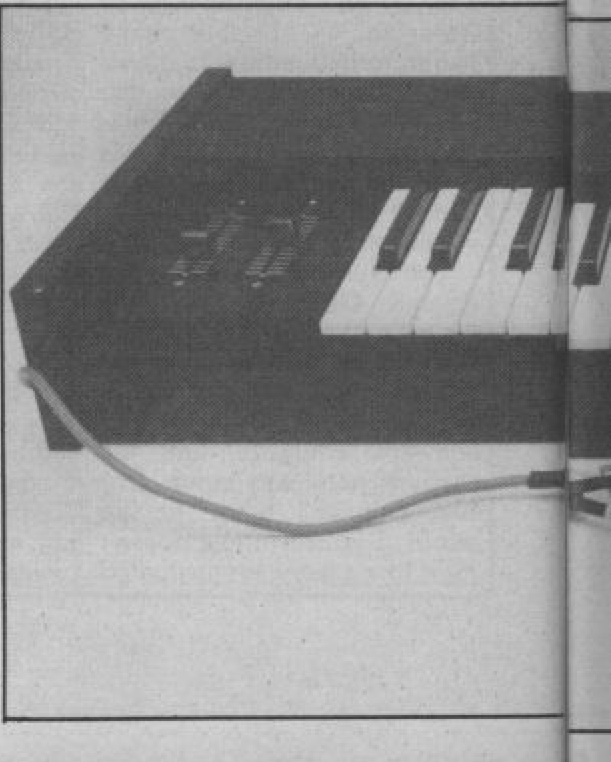
COMMODORE MUSIC MAKER

Commodore's **Music Maker**, at £29.99, is the cheapest package under review. The kit contains a 24 note slip-over plastic keyboard, the program cassette (or disk), and a manual. The keyboard works like this: you play a note and the note presses down on one of the computer's keys. What could be simpler? Because there are no electrical connections (no messy wires to upset the cat), it's a very simple matter to write your own music programs. That's not to say Commodore's Music Maker software is simple, perish the thought! As it turns out, the supplied software (I tried the disk version) is very flexible and easy to use.

While loading, your screen is graced with a hi-res 3D picture of a pair of hands playing a keyboard. After a minute or two this is replaced by the main menu-screen. Because most of your computer's keys are obscured by the Music Maker keyboard, most of the options are selected using the function keys.

Play the functions

The options available include monophonic or polyphonic modes, the built-in rhythm and bass line generators, and the sound editor. Selecting the sequencer option invokes another menu, again, mostly accessed by the function keys. At this point, I should



AY IT AGAIN SID

describe the rather novel sequencer technique used here.

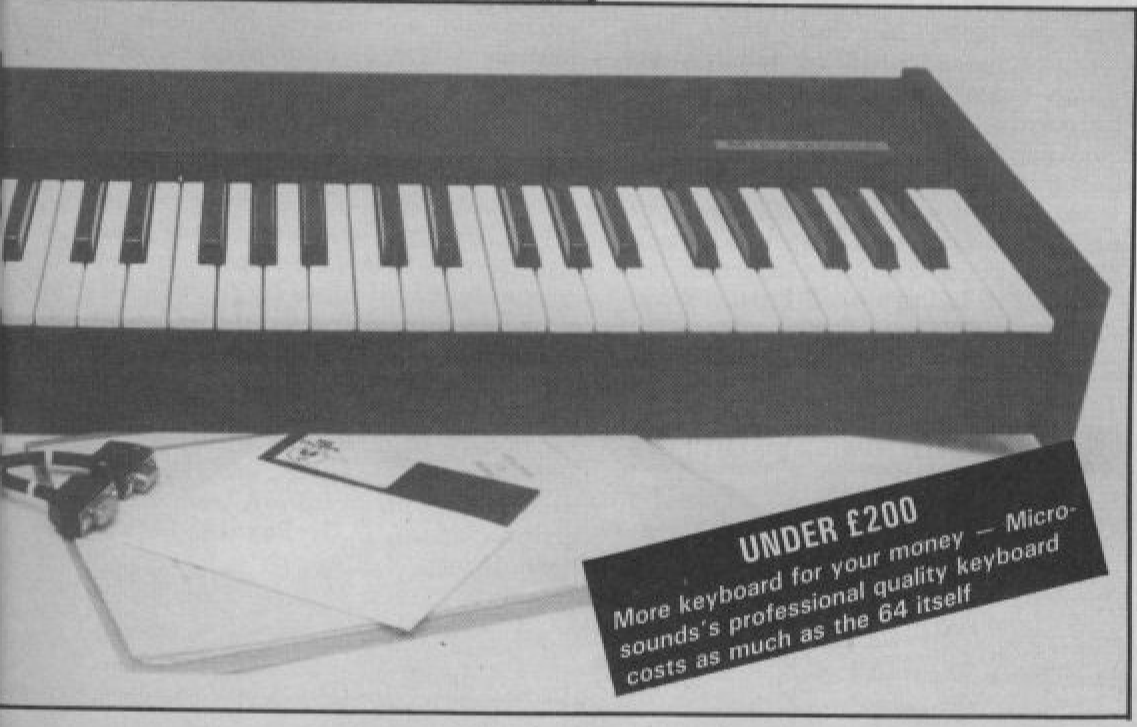
The screen displays the various options at the top, while underneath, the names of the notes you play scroll across the screen from right to left, indicating the last notes played. Editing is restricted to deleting the last note(s) played; you can't go back and correct just part of your sequence. At this point, each note is assigned the same length, and selecting the 'time' option allows you to tap out the rhythm on any key. When this is complete, you can play back the whole sequence in full. But you're limited to only one voice.

Load and save options are just as straightforward, as is the sound editor. The auto-rhythm offers one of three different rhythms for you to play along with, and an optional bass-line too!

Conclusion? The software alone makes this package attractive to me, and the keyboard itself is a smashing idea. Being reasonably cheap, it's available from Commodore outlets everywhere.



UNDER £150
Spot the difference? Both the Siel CMK 49 and Music 64 offer four octaves for around £125



UNDER £200
More keyboard for your money — Microsounds's professional quality keyboard costs as much as the 64 itself

LVL KEYBOARD

The **LVL Keyboard**, at £99.99, just squeezes inside the £100 range. It's a 37 note (3 octaves) add-on keyboard for the Commodore 64, of 'professional' standard, that plugs into the 64's user port. The inter-connecting ribbon cable was plenty long enough not to cramp my style, and the case was surprisingly mostly metal. Although only 22" long, I found its three octave span was quite adequate.

The software arrived on cassette but without the flimsy instruction manual that accompanies it. Being no stranger to such things, I had no trouble loading and operating the keyboard and software.

Screen options

The main screen controls are grouped into four rows. The top row gives options for auto-chord major/minor/off (you press one note, the computer calculates the other two automatically), and tremolo/vibrato/off. The next two rows allow selection of one of eleven presets, one of which is user defined (you can create your own sound, and hear the results simultaneously).

The bottom row of screen controls lets you step the overall pitch up or down in semitone jumps. Clever use of this function can drastically change the effect of a sound, or transform a rhythm. The presets are not very imaginative, and cannot be altered. The LVL software does not support loading or saving of presets, and any thought of sequencing is right out of the window!

Still, at £99.99 for the whole package, the keyboard does seem a good buy. If only LVL had included a section in the manual explaining how to access the keyboard from Basic, for use in our own programs . . . Still interested? Try LVL, Scientific House, Bridge Street, Sandiacre, Nottingham, for more information.

THE SIEL CMK 49 KEYBOARD

The **Siel CMK 49** is a little more expensive at £125. It's a very versatile synthesizer package incorporating its own external music keyboard and MIDI (Musical Instrument Digital Interface) compatibility. On loading the main program, you have the option of creating a preset sound immediately from scratch or continuing to load the 40 preset sounds that come with the package.

The preset sounds provided on the tape range from flutes to string and harpsichord sounds, some of which are monophonic (only one note at a time) and some are polyphonic (up to a maximum of three notes at a time). All of the preset sounds can be modified by the user and saved-off, giving you an almost limitless number of sounds.

Editing is a simple matter, although sounds of great complexity can be achieved. After you have set up a sound, you can 'name' it for later reference. This name is also referred to during Load/Save operations.

Looking at the keyboard

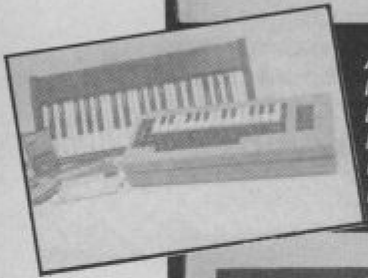
The CMK 49 is (as its name suggests) a 49 note, 4 octave add-on keyboard for the Commodore 64. It's dark grey, made of rigid plastic, and has a long length of ribbon cable terminated in an adaptor. This has a double function: it allows the connection of the keyboard to the expansion port, while also permitting the connection of the Siel MIDI interface. The actual keys have a weighty feel that reminds one of expensive synthesizers. I found it very comfortable.

The package comes with a difficult-to-follow multi-lingual manual (Siel is an Italian company). Although it contains some 30 pages, only five of these are dedicated to the English user. In fact, the manual only really makes sense if you have the software running when you attempt to understand it.

This is a well put-together package, full of professional features, just what you'd expect from a company with a reputation for high-quality synthesizers. At £125, this package is downmarket for Siel, ▶

PLAY IT AGAIN SID





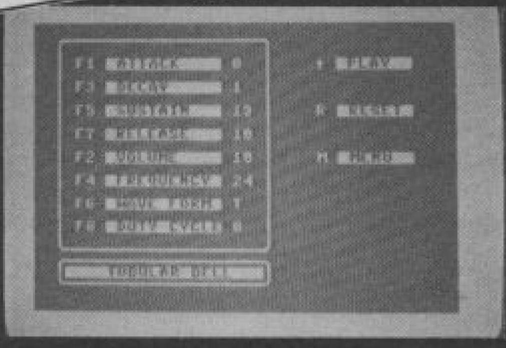
Above: LVL offers Organ Master software with its Echo 1 keyboard.
Below: Music Maker uses the 64's function keys to select menu options.

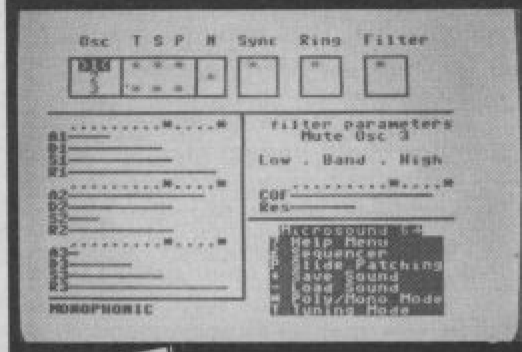






Above: Siel software lets you create your sounds from scratch or by loading up a preset. Below: secondary menu option on the Music 64 program lets you change the parameters of a preset sound.







Above: Microsound's software offers a menu-driven sound control program — with enough buttons and sliders to satisfy the hardened synth player.

but represents good value. More information from Vince Hill Associates, 35a Grove Avenue, London N10 2AS.

SOLASOUND 'MUSIC 64'

The **Solasound 'Music 64'** add-on keyboard also costs around £125. It connects to your Commodore 64's cartridge port via a long length of ribbon cable (handy if work-space is in short supply). It's a 49 note keyboard (4 octaves, C to C), with a professional feel to it. The case is made of strong plastic, almost the same colour as the computer itself.

Music 64 software

To put these features to work, though, you need software. If you are an experienced programmer, you might like to have a go at working out where the keyboard sits in memory, and writing your own software. Otherwise, you are stuck with the Solasound software provided with the package. The disk (or cassette) contains two short programs, both written mainly in Basic, and probably not the sort of thing you would fork out money for on their own.

The first program is a monophonic synth system with some surprisingly good preset sounds, the strings are particularly good. All the sounds can be edited, but the end result cannot be saved.

The other program is a polyphonic synth system, similar in structure to the monophonic synth. Only five presets are available here, and they aren't quite as spectacular as the monophonic presets, but at least you can play chords!

Neither program supports any sequencing, loading and saving of presets, or anything useful, and the manual was very little help. I spent about 15 minutes exploring this package, and I felt decidedly disappointed when I realised the limitations of the software.

Conclusions? The keyboard is great, the software is very limiting, the potential is there for you to make use of, and to that end. The manufactuers could at least have given some technical data on the hardware, or produced some more exciting software. In fact, Solasound points out that a wide range of software should soon be available, but no real details had surfaced before going to press. For more information, Solasound Ltd are at 18 Barton Way, Croxley Green, Rickmansworth, Herts.

MICROSOUND KEYBOARD

The **Microsound** system is a 49 note, 4 octave professional keyboard and synthesizer package. And at £195, it's the top of the range offering. The keyboard itself is quite chunky, and very well made in black vinyl-covered wood. On the left-hand side of the keyboard is a pair of analogue sliders, and connection to the computer is via a single cable terminated in a pair of joystick-type plugs. These are obviously designed to connect to the games ports on the right-hand side of the computer, but I found it rather awkward to fit both plugs in the right way round as the plugs are a little oversized and the connecting cable rather short.

The software arrived on disk (also available on cassette), with a comprehensive manual. The manual is in loose-leaf form, bound in a PVC folder. I found the manual well written, with the various aspects of the system dealt with section by section, and well indexed.

After loading the software (about two minutes on disk), you get the main screen display in the form of a sound edit panel. The editing facilities are comprehensive, and cover all aspects of the SID chip. Once you have created a sound, it can be stored on tape or disk for future use. In this way, a whole library of sounds can be built up and easily accessed.

Sequencing sounds

The sequencer part of the software works extremely well. As the notes are played in, one voice at a time, the name of the note is displayed on a scrolling chart. At any point you can cursor back and 'play over' to edit out mistakes before going on to record the next voice. On playback, the tempo can be adjusted, and the speed is greatly increased by selecting 'graphics off'.

Slider controls

The other function that must be mentioned is the analogue sliders. These are read by the computer in the same way as paddles, and can be used to control certain aspects of the sound. Depending on how you have set up your sound, you can use the sliders to control vibrato, pitch-bend, pulse width, filter frequency, resonance etc.

The Microsound system is designed to be expanded, and a range of extras include the facility for digital sampling — the latest state-of-the-art technique!

My overall impression of this package is favourable and, at the moment, only limited by the 64's SID chip. My only gripe would be about the games port connectors — a little more thought required, I think. Despite that, the Microsound keyboard and software seems to represent good value at £195, and details can be obtained from Autographics Ltd., P.O. Box 14, Petersfield, Hants. □


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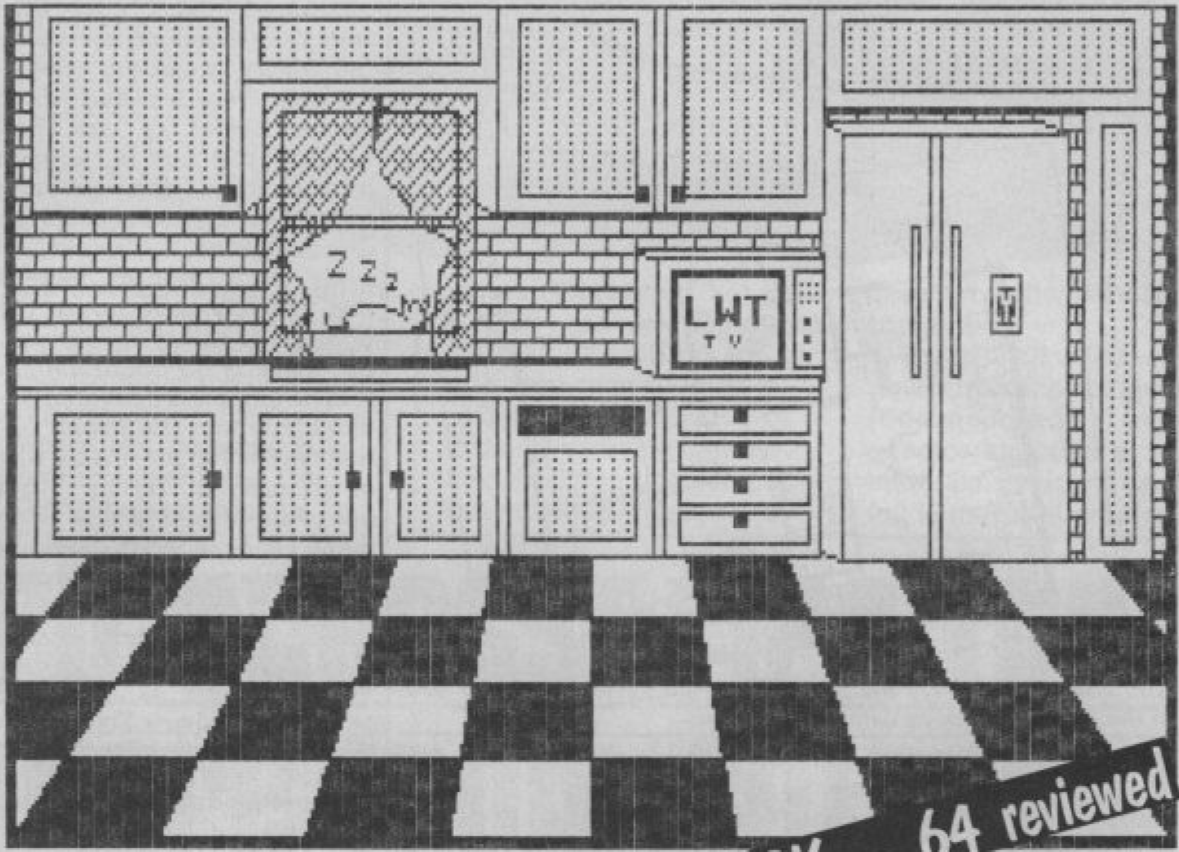
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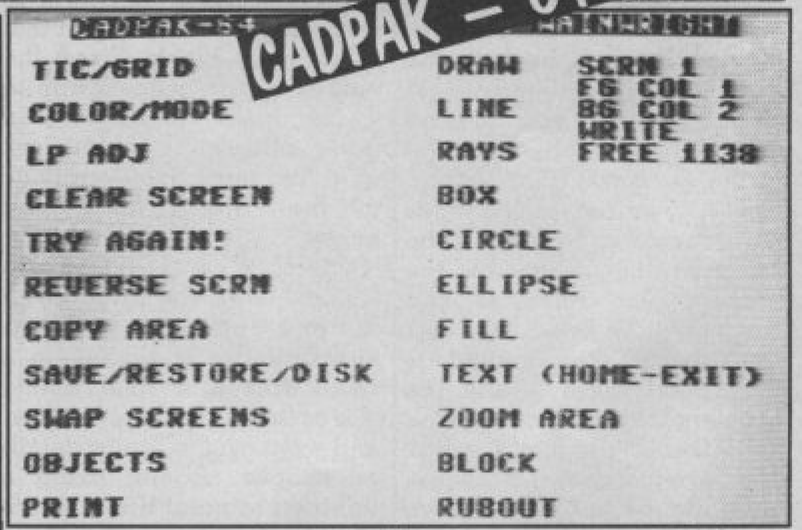
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Drawing for professionals?

Last month, we looked at a range of drawing tablets for the Commodore 64 that let you draw sophisticated pictures and designs. But with computer-aided design (CAD) all the rage in the engineering and electronics industry, Chris Durham has turned his attention to Cadpak-64, a CAD program that turns drawing for fun into drawing for professionals.





Top: design your fitted kitchen on screen instead of struggling with a tape measure? Right: Cadpak's main menu showing the command and drawing options available.

by Chris Durham

Name any type of business application and somebody, somewhere has produced a program to carry out the same function on the humble Commodore 64. It was with interest therefore that I received my copy of Cadpak-64 from American software house Abacus, as this attempts to permit the function of Computer-Aided Design using, not a graphics tablet, but a light pen.

There have been programs supplied with lightpens that allow you to draw on the screen, if only to persuade you that lightpens can do something useful, but these normally fall far short of true CAD facilities. Cadpak-64 attempts to allow most of the functions which separate the professional CAD system from such 'drawing' programs. It comes on disk and costs £35, which includes the manual, but *not* the lightpen. A suitable pen is available from the suppliers Adamsoft for an additional £14.95, but the Stack lightpen works just as well. Like many business programs these days, the disk is protected against copying, although the suppliers will provide a back-up disk at a cost of £5.

Starting up

The disk has a number of programs and demonstration pictures on it. Having loaded the initial program the remainder are loaded and run automatically, the only pause being to request the type of printer being used. Printer options range from the Commodore 1525 through Okidata to Epson (7 types in all). Note that there is no facility to connect Centronics printers to the User-port; any interfaces must connect to the serial bus.

Having loaded the program you must first align the lightpen; the main menu then appears (above). This shows all the drawing options, plus the options which allow access to disks, printer and the 'object editor' of which more later. You just point the lightpen at the command and activate the switch. In fact you must do it twice, just to confirm that the light pen position has not been misread; if you change the position of the pen for the second attempt it ignores the command.

Starting to draw

You can either try out the different commands such as *box*, *circle*, *rays* and *line*, or you can load one of the demonstration pictures and amend that. In either case there is a 'try again' option which will delete everything you did since you last accessed the main menu; you must return to the main menu each time you wish to change the mode or command. This is done by moving the light-pen to the right-hand border of the screen. When you have completed your masterpiece you can save it to disk or print it in one of two sizes.

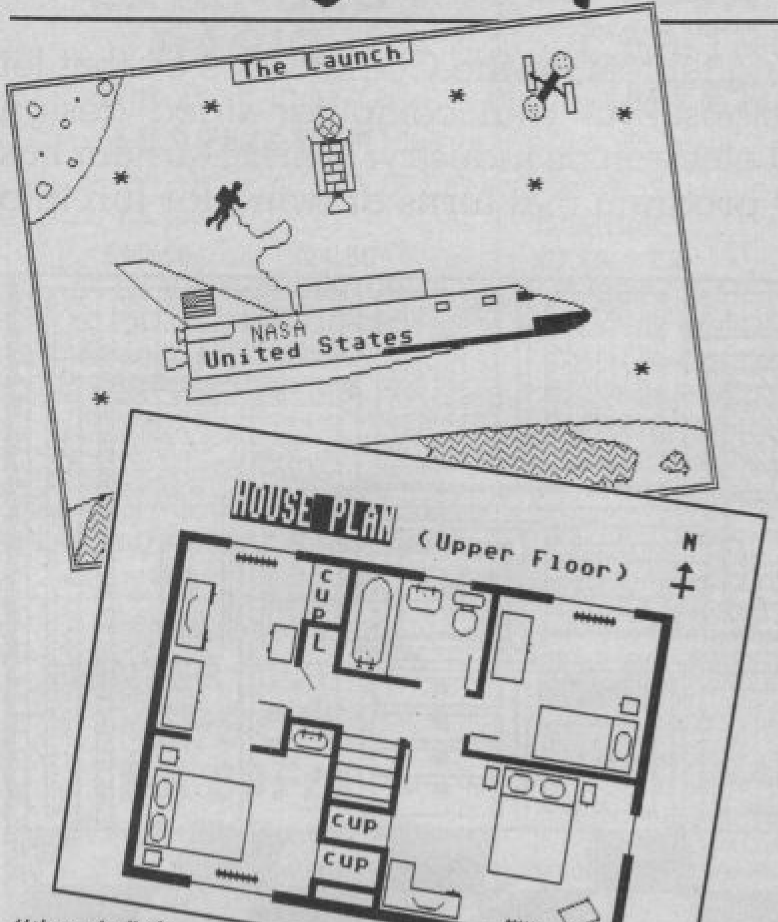
There are two graphics screens permanently available and you can have totally different pictures on each. There is also a facility which allows you to copy an area from one screen and insert it on the other; this can also be used to copy from one part of the screen to a different area on the same screen. The 'swap screen' option allows you to change between the two screen areas.

How accurate is it?

You create a shape such as a line, box or circle by defining the points which form the shape. Activating the pen causes a 'target' square to appear and align itself on the pen. Moving the pen moves the target.

Releasing the switch will freeze the target point. But here is where Cadpak scores over many other programs; ▶

Drawing for professionals?



"there is little you could not manage to create in the way of graphics with this program"

you can now 'nudge' the target one pixel at a time in any direction by moving the pen off-screen to the border and activating the switch. Moving the pen back to the main screen freezes the target completely and you now go on to define the other point(s) in the same way. For second and subsequent points, four more target squares show the relative dimensions of the shape; these alter as you move the light pen.

Although this method is very good there is still the problem that it's very difficult to work out whether the box you have just drawn is six pixels wide or seven; the eye cannot determine the screen resolution well enough. When you print the hardcopy the relative X/Y ratio alters because the printer resolution is different to the screen resolution; it also depends what size you print the screen. Small size allows three screens on one page but expands the effective width of the drawing.

Range of commands

Not only are there the standard commands I have already mentioned, but there are a number of additional commands as well. It is possible to *reverse* either the whole screen, or just part of it. This can be useful if you want to work on part of the screen that is normally black. Since the pen will not respond on a wholly black area, you can reverse that bit to white, work on it and then change it back to the original colouring again.

There is a *zoom* option which allows you to go down to one pixel resolution, although this is limited to a small area at a time. Using this option allows you to alter, and even create, quite detailed shapes. Again, using a lightpen to point directly to a single pixel 'marker' on the screen is extremely easy.

If you want to see how your detailed changes will look, f7 allows you to preview the full screen showing the changes made. The *fill* option fills areas with solid colour, a user-defined pattern, or even the symbols and characters on the keyboard; the permutations are endless. The screen-dumps show the range of subjects that can be drawn.

Disk options

These are comprehensive and allow everything from formatting a new disk to erasing a file. You can even change the disk drive number, although you *cannot* access the second drive of a twin-drive system. When you select the directory option, the directory entries are numbered. You must then select the filename by typing the entry number. Unfortunately there is a bug which always fouls up the first number you put in, so you have to do it twice; pressing 'return' on its own repeats the directory listing.

My main criticism here is that you still have to use the lightpen to select the options, *but there is no confirmation.* If the lightpen is activated accidentally and the wrong option is selected there is no way of aborting it. Trying to get out of an unwanted disk command I succeeded in crashing the program. Only by typing 'GOTO 1' did I manage to get started again without losing the drawing.

The Object Editor

One of the apparent advantages of Cadpak is the ability to define commonly used 'objects' and then store them on disk. These objects can then be recalled and added to your current drawing at any size and orientation you require. Such objects could be electronics; the real pitfall comes when you try to define them.

To create an object you must load and run the 'object editor'; this is done from within the program. The editor works by defining the objects in LOGO type terms — move, draw, turn etc. I quite like LOGO commands since they are easy to use, quite specific and enable you to draw almost any shape you like. However, have you ever tried writing LOGO commands using a light-pen? It is without doubt one of the most idiotic uses for a lightpen I have ever come across; not only that, but because of the colour combination used on the 'command' panel at the side my lightpen fails to respond more than 25% of the time.

The result is that after using Cadpak-64 for nearly three months I have yet to define a single object successfully. If only the program writers had forgone the lightpen in this particular application and used the keyboard instead, life would have been much simpler. After all, the object editor is supposed to save you work, not make life impossibly difficult. It is fortunate that the rest of the package is so versatile that you can manage without ever using the object editor.

The manual

This is a loose-leaf folder containing about 66 pages plus a few example drawings at the back. There is a very general contents page and no index, which makes finding a particular command a bit hit and miss. Nevertheless, it covers the commands in adequate detail. The best way of finding out about the system is to try out the commands, using the manual as a guide only.

Conclusions

As a general CAD package Cadpak is quite useful. It can be of great help in drawing up general house plans, trying out furniture positions in rooms, drawing posters/cartoons and anything where great accuracy is not important. Personally I liked the facilities which the lightpen offers. The ability to put the target cross where I wanted, plus being able to tweak the position one pixel at a time was very useful. I do have one reservation (apart from the object editor); after a long session your arm gets very tired and you may need to resite the TV!

Cadpak-64 is a worthwhile addition to your system if you have a use for a general CAD package. If you must have the object editing facility then I recommend you get a demonstration first before committing yourself. Apart from that there is little you could not manage to create in the way of graphics with this program as long as you do not require scale accuracy. □

Cadpak-64
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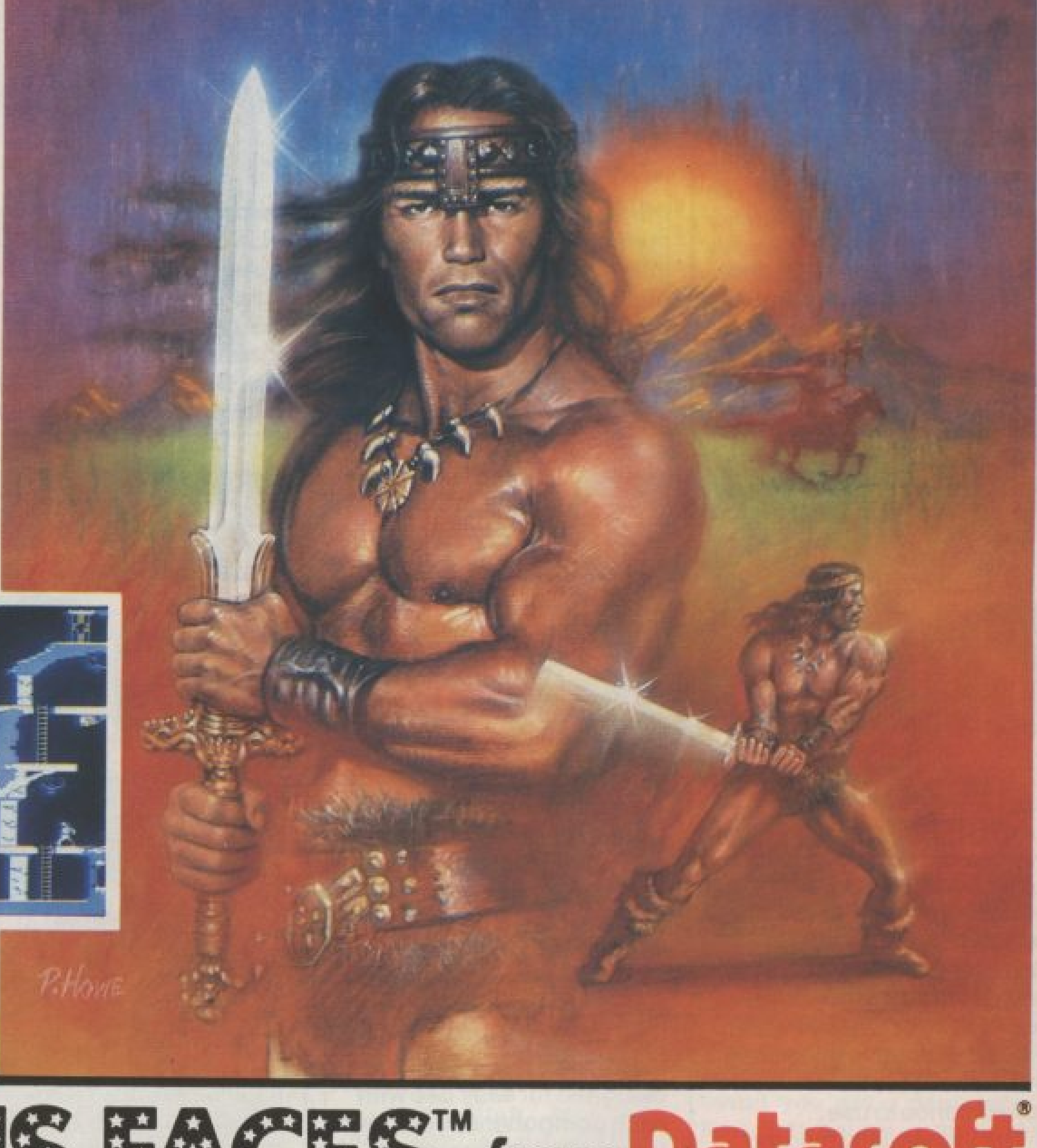
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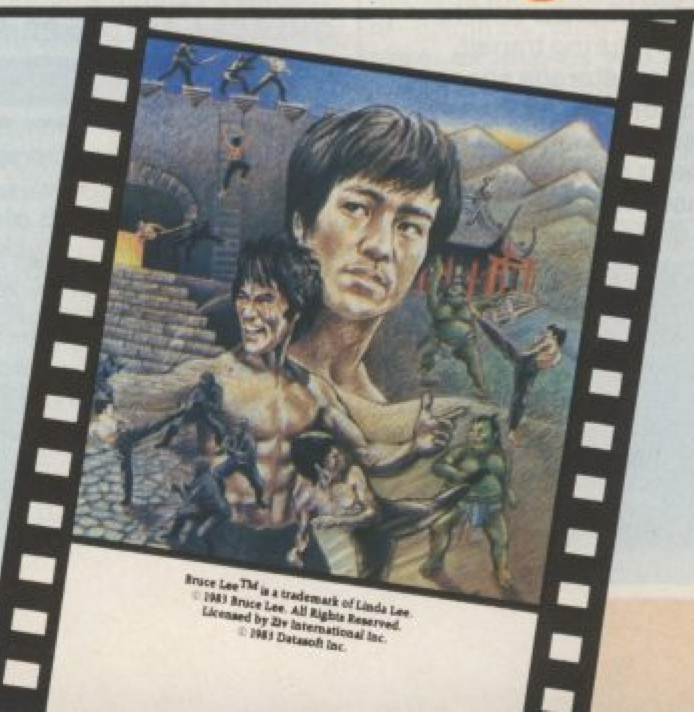
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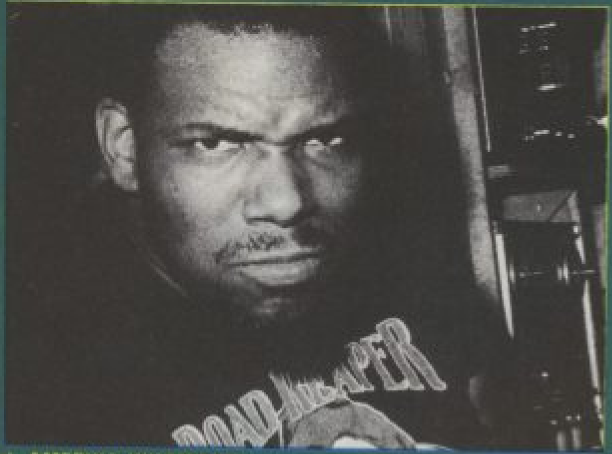
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BREAK!





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Just so as your 64 won't feel left out of things we are also offering two great new CBS games, **Breakdance**, appropriately enough, and this month's Screen Star, **Impossible Mission**. CBS are offering twenty-five as runners-up prizes as well.

All you have to do to win one of these super prizes is select the right group from the three options offered for each picture and complete the tie-breaker, then fill in the form below and send it off to Commodore User, Breakdance Competition, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU — no later than 26th April.

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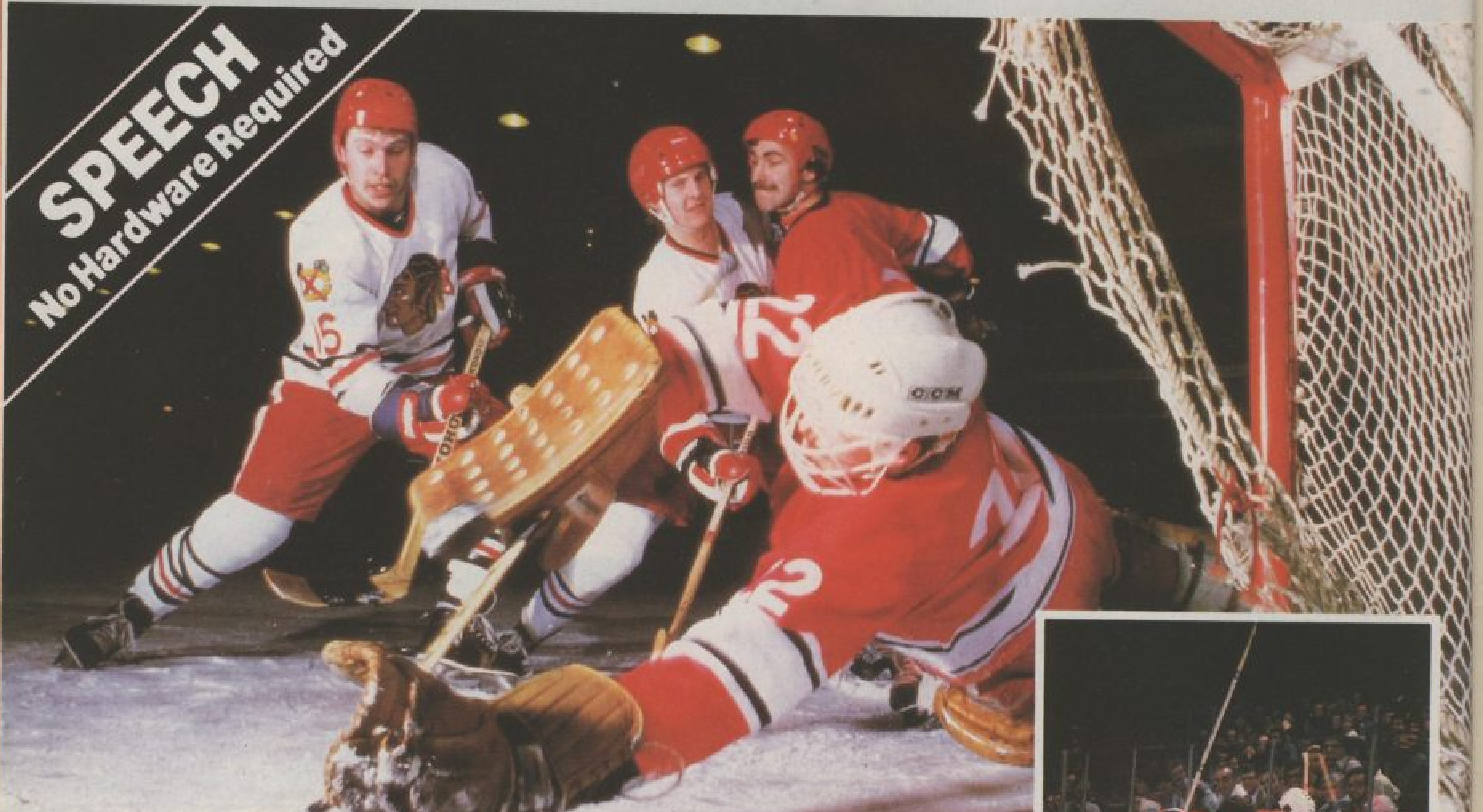
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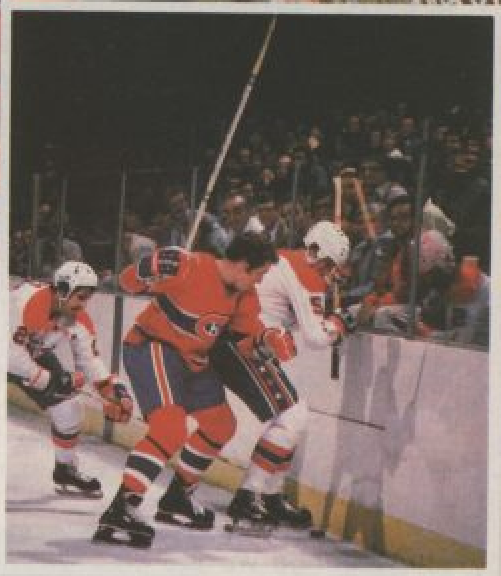
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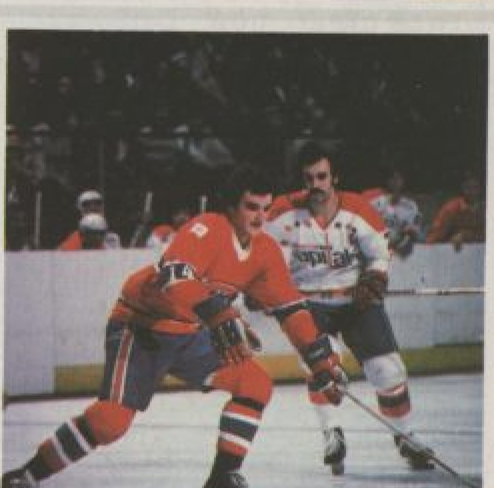
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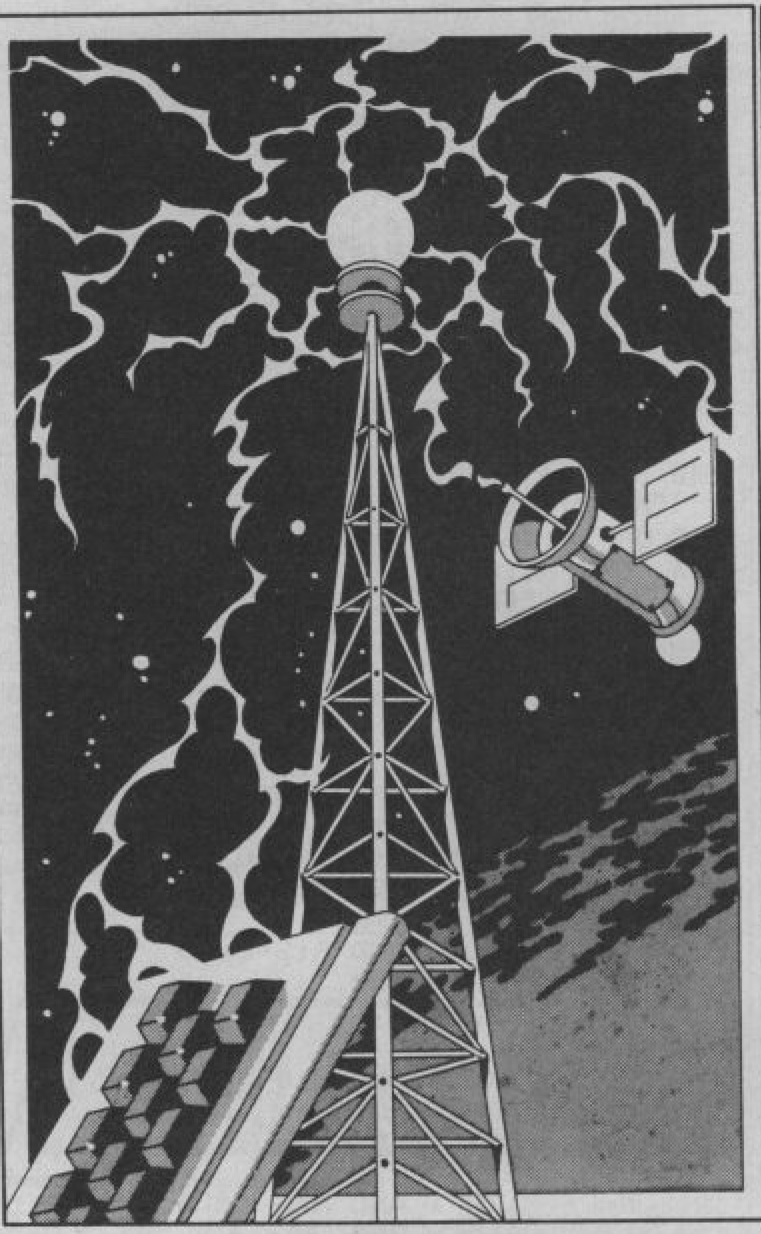
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MICRO-WAVE RADIO



Part 2 — receiving morse code

by Jim Grubbs

Having dispensed with the introductions last month, it's time to get to grips with receiving morse code on your Vic or 64. Radio enthusiasts can start warming up their soldering irons to build the very simple interface you'll need to link your receiver to the micro. The whole lot should cost under a tenner. But don't worry, those of you who struggle changing a fuse, we're also listing some cheap commercially available devices.

So why do you need an interface? Simply to convert the audio signal coming from your receiver into voltage levels that your micro can deal with.

But let's start by looking at several important concepts. Since this is also our first project that connects to the "outside world" we will take a look at how to get signals into the computer.

Morse and binary

Your computer is very talented when it comes to interpreting signals that consist of only two values, on and off, or high and low. By the time your micro executes any program you ask it to run, it all ends up as one of two values. Mathematically the two states are represented by 0 (zero) and 1 (one).

Consider morse code for a moment. The key is either open or closed. When you receive the signal, either tone is present or it isn't. This seems to meet our requirement for communicating with our Commodores.

From here on, the discussion gets a bit more complex. The way that we distinguish between different letters involves interpreting both the number and length of individual elements within each letter. The end of one complete letter is signalled by an extended space, the end of a word signalled by a longer space. Our task becomes a bit more difficult now.

It is possible to write a program, in either machine language or Basic that parallels the decision-making process that a code operator performs. When such a mathematical representation of a task is designed, it is known as an *algorithm*. That's nothing but an expensive word for a formula.

It makes no difference if the program is executed in Basic, machine code, Pascal, or any other appropriate language. What does come into play is the speed at which the program executes. As you probably know by now, Basic can be hundreds, even thousands of times slower than machine code. Although you could achieve greater speeds by using a Basic compiler.

ILLUSTRATION: ROY INGRAM

Morse code program

For the purposes of the morse code receive program, (figure 1) this is a very real limitaton. Our program will copy code reliably up to approximately 20 to 25 words per minute. Above that speed the programming code can not be executed quickly enough to keep up with the incoming signal. Down the road, we may overcome this problem with a machine language version of the program, but the theme this month is to keep it simple.

The algorithm, or formula used in our program thinks this way. First, a determination is made — is the key up or down? Under no signal conditions the key is "up". If this is the case, the program stays in a loop until a signal is received. As soon as a signal comes in, the program begins to time the signal. Is it short, a 'dit', or long, a 'dah'?

Internally your micro is using a single byte of storage to form an image of the incoming signal. When the program starts this byte is loaded with a 1, or in binary 00000001. If the signal coming in is determined to be a dit, two times the value of what's in memory, in this case, a one, is stored in the register. If the signal is a dah, or dash, then two times the value of the register plus one is stored in the byte memory. Let's use an example:

The letter "U" is two dits and a dah — phonetically ditditdah. The memory is first loaded with a one. The first dit is received. This means that the value of the byte must be multiplied by two, which yields a value of two. The small space between the first and second dit resets the timing loop. When the second dit is received, the value in the register, now a two must be multiplied by two, which makes a value of four. Again the space resets the timing. When the dah comes along, the four stored in memory is multiplied by two and a one is added, making a value of nine. A longer silence tells the program that this letter is now complete.

If you take a look at the data table you will find that U is the eighth letter in the table. ▶

Since a value of zero in the register is undefined, the index into our table will always be one less than the calculated value. Calculate a few more if you like, but it really does work, take my word for it.

There are versions of this program that reverse the values, for the dits and dahs. Consequently the table will look somewhat different for them.

Add some timing loops to distinguish between intra-letter, inter-letter and inter-word spacing, a neat little routine to automatically adjust the speed, and the program is complete.

If you are keen on mathematics, you may notice that the image of the morse character has been stored in the register with the zeros representing dits and the ones representing the dahs. The most significant bit must also be dropped. Remember, we loaded that one in ourselves before starting to receive the letter, so now we must get rid of it to see the proper morse image. So our U comes out a decimal nine or in binary 1001. Dropping the most significant bit, we have 001, or ditditdah — a U!

Receiving dits and dahs

All of this is meaningless if we can not figure out how to input the signal into our Commodore machine. For the most part the procedure is similar between the Vic and the 64.

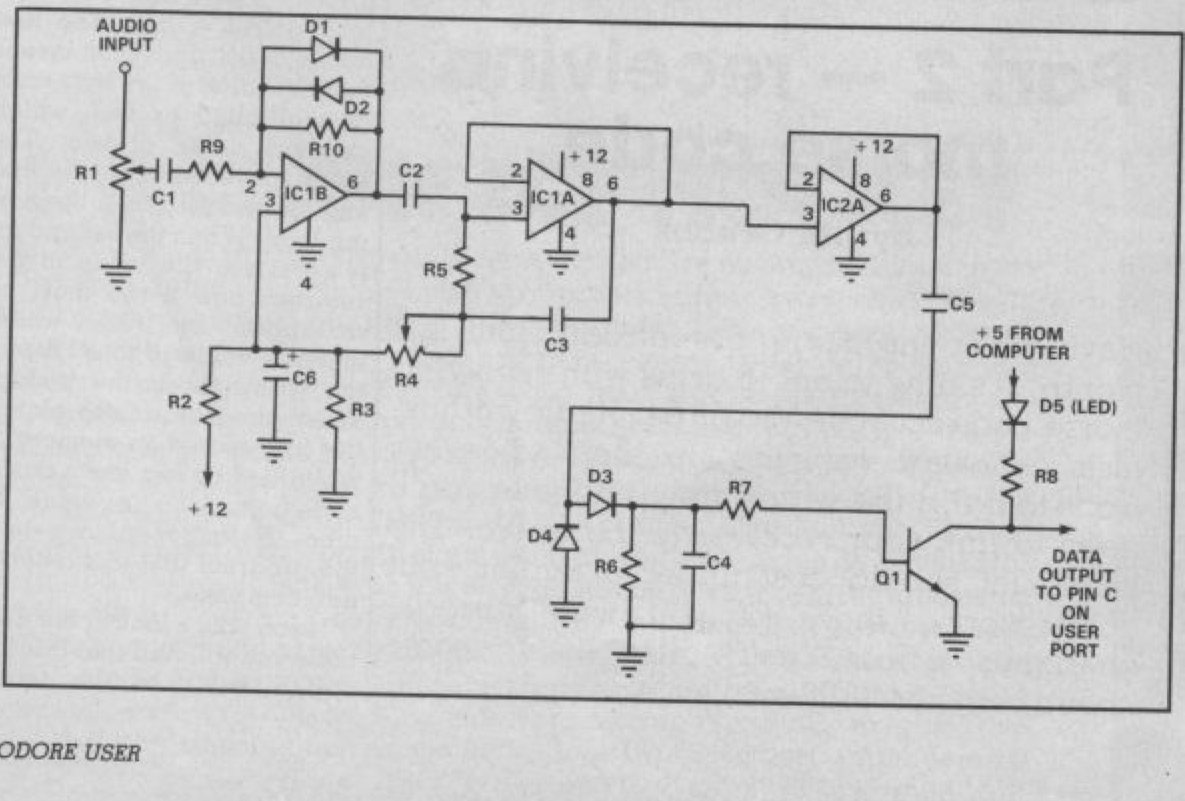
There are two key registers to be considered when inputting and outputting a signal from the Vic or 64. The *data direction register* or DDR can be thought of as a valve that either allows data to come in, or allows data to flow out. Each individual bit in the data register can be designated for either task.

If only one input or output signal is being used, you can merely set the DDR to either receive (the normal state) on all bits, or to transmit on all bits. In most cases though you will want to be a bit tidier and address only the particular bit in the register that you want. To do this, you must learn about masking.

In addition to the normal mathematical functions inherent in your computer, it can also perform logical functions. Neither of us is up to a dissertation on Boolean algebra, but there is a relatively simple concept we must discuss.

MICRO-WAVE RADIO

```
100 REM RADIO POST MORSE FOR VIC-20
110 REM NOTE CHANGES FOR C-64
120 REM IF C-64 UP=56577:DD=56579
130 DATA E,T,I,A,N,M,S,U,R,W,D,K,
    G,O,H,V,F,-
140 DATA L,-,P,J,B,X,C,Y,Z,Q,-,-,
    5,4,-,3,-,-,-,2,-,-,-
150 DATA -,-,-,-,1,6,-,/,-,-,-,-,
    -,7,-,-,-,8
160 DATA -,9,0,-,-,-,-,-,-,-,-,-,
    -,-,-,?,-,-,-,-,-,-,-
170 DATA -,.,-
180 DIM R$(85):FOR N=1 TO 84: READ
    R$(N):NEXT
190 UP=37136:X=0:Y=0:Z=0:R=1:DD=37139
200 POKE DD,0
210 PRINT "[CLS]RADIO POST MORSE
    RX:":PRINT
220 POKE UP,0
230 UR=PEEK (UP) AND R:IF UR<R THEN330
240 GOTO 230
250 S=0
260 UR=PEEK (UP) AND R:S=S+10
270 IF UR=R THEN Z=((5*Z)+(2*S))/6:
    Y=(2*Y)+1:X=(2*X):GOTO 330
280 IF S <.60*Z THEN 260
290 Y=(2*Y):X=(2*X)+1
300 UR=PEEK (UP) AND R:S=S+10
310 IF UR<R THEN 300
320 Z=(4*Z+S)/5
330 S=0
340 UR=PEEK (UP) AND R:S=S+10
350 IF UR<R THEN 250
360 IF S<.60*Z THEN 340
370 GOSUB 420
380 UR=PEEK (UP) AND R:S=6+10
390 IF UR<R THEN 250
400 IF S<(2*Z) THEN 380
410 PRINT" ";:GOTO 230
420 X=(2*X):P=X+Y:IF P>84 THEN P=84
430 PRINT R$(P);:X=0:Y=0:RETURN
```



AND or OR?

One of the logical functions available in computers is the AND function. The logical AND instruction takes two numbers and compares them for similarities. Again, an example is the best way to understand.

Assume for the moment that a decimal 24 is stored in a computer register. We want to know if there is anything set in the eights (8) position. Since our machine speaks binary, we are really comparing 11000 with 01000.

When looking at the two numbers in binary, it becomes apparent that in bit 3 (the fourth position from the right) both numbers have a 1. Remember when counting positions the first position in a number is on the right-hand side and is considered bit zero.

The AND function compares two numbers rather than performing a regular mathematical function on them. In our example it checks to see if the condition "is there a bit set in the '8' position" is true or false. If the condition is true, a 1 is returned. If the condition is not met, then a 0 is returned.

Another popular logical function is OR. In this case, the condition is true if either one or both of the numbers being compared has a bit (or bits) in the proper position(s). Don't let the mathematics get you down. With a bit of use, you will soon be using logical functions with no problem at all.

With the traffic cop, the

DDR, properly set, we can now read the data register itself. So now we've got a program and a way to input a signal to the computer. What we need is a device to convert the signal coming from our short-wave receiver into something compatible with the 64 and Vic 20.

Building the interface

Your Commodore micro and most other micros communicate internally using 5 volt DC signals. This is known as TTL (transistor-transistor logic) level signalling. The rest of the world generally uses RS-232 levels, approximately plus and minus 12 volts DC. No matter what you are interfacing, you must provide a TTL compatible signal to the computer.

The audio signal coming from your receiver is an alternating current signal and can range in amplitude from below a volt to many volts. It would be very dangerous to connect such a signal directly to your computer. Even if you did, the program would be unable to correctly interpret the input.

Fortunately, a simple converter will do the trick and can be constructed from just a few parts. A phase locked loop integrated circuit such as a 567 can be used. I've chosen to pass along a schematic submitted by Roy Dancy, N4AN of Dothan, Alabama.

How it all works

The first stage of the unit serves as a limiter to keep a constant level signal coming into the converter. The second stage acts as a sharply tuned filter with a bandpass of about 100 hertz. A little amplification takes place and drives a keying transistor that supplies the on and off 5 volt and 0 volt signals your micro wants to see.

Variable resistor R4 tunes the centre frequency of the filter to match the frequency of the filter in your receiver. Normally this is in the 800 hertz range. Resistor R1 adjusts the level from your receiver. The light emitting diode at the output should flash in step with the incoming signal when everything is properly tuned. The output of the converter connects to pin C on the user port connector on the rear of your computer. Don't forget that you will also need a ground connection (pin A works well). You can obtain the 5 volts for Q1 from pin 2 on the same connector.

If you need a bit more incentive to build up the interface, keep in mind that you will be able to use it to receive teletype (RTTY) signals with an upcoming program!

If you don't have a receiver but would like to try out the program, you can connect a key between pin C and pin A (ground) on the user port. As you send, the letters should appear on the screen. It will take a character or two for the program to synchronize to your sending. Until next time, 73 from the Grubbs ham-shack.

Parts List

Resistors
R1, R4 50K variable presets
R2, R3 3300 ohm
R5, R7, R9 10K ohm
R6 4700 ohm
R8 470 ohm
R10 820K ohm
Capacitors
C1 .01 uf
C2 270 pf
C3 .47 uf
C4 1.0 uf
C5 0.1 uf
C6 100 uf
Diodes
D1, D2, D3, D4 1N914 D5 Light emitting diode
Transistor
Q1 2N2222 (or 2N3053)
Integrated Circuits
IC1, IC2 LM358 (or LM741) Operational Amplifier

For those of you who'd like an alternative to the interface printed here or who'd like a ready-built device, here's a list of suppliers:

- **PNP Communications** of 62 Lewes Avenue, Newhaven, East Sussex supply the MFI Morse Interface unit to decode and display morse. The DIY kit costs £11.50 but you can buy the ready-assembled PCB for £17.50.
- **Technical Software** of Fron, Upper Llandwrog, Caernarvon, Gwynedd, will sell you an RTTY, CW and morse receive/transmit program that uses a very simple and ready-made interface costing £15. The tape and components cost £17.50.

SCREEN SCENE

This month's Screen Scene will have you tapping your feet and humming along as we review the break-dance games for the 64. Scoop of the month is the first review of Commodore's latest sport game — International Basketball. *From the keyboard of Andy Spencer of* International Soccer *fame — basketball is finally here. Top games writer Mike Pattenden compares Basketball with Ariolasoft's* One on One *and tells you which one to spend your money on. There's three new shoot 'em ups in the shape of* Gryphon *from Tony Crowther,* Penetrator *by Melbourne House, and Alligata's* Hyper Circuit. *C16 owners get in on the action again this month with two new titles from Anirog. Talking games are back again, the best example is this month's Screen Star — the amazing* Impossible Mission *from Epyx. The speech on this game has to be heard to be believed. Forget talking add-ons, forget* Ghostbusters *— this is it. Anirog have a talkie on offer as well — with their ice hockey game —* Slap Shot. *Other highlights include* Cauldron *— the guaranteed smash hit from Palace Software. This is one of the best arcade-adventures yet for the 64. Beyond also offer a characteristically innovative new game with* Shadowfire *— the first ever icon-driven adventure game.*



Breakdance
Commodore 64
Epyx
Price £8.95/cass
£11.95/disk

Presentation:
Skill level:
Interest:
Value for money:

V's

Break Fever
Commodore 64
Interceptor
Price £6.95

Presentation:
Skill level:
Interest:
Value for money:



For this game you've got to put on the Sergio Tacchini tracksuits, hood up, mind; on with the basketball boots as well. Right, now we're ready to break, and you've got to be a bit sharp if you want to be one of the crew in Epyx's four game contest.

The loading picture of a graffitied New York subway train lets you know this game takes itself a bit seriously, which is a bit of a shame because it's impossible to emulate any kind of physical action with a bunch of pixels and a joystick. Never mind, Epyx have got round the problem by making their game along puzzle lines.

In the first option you have to mirror the moves of the local ace, 'Hot Feet'. This man is bad! It's easy to begin with, then it ends up like that game you play when you're bored: 'in my grandmother's suitcase' where you have to remember everything everyone else has put into it.

In stage two you're battling with a load of breakers who've invaded your turf. Same thing applies, emulate their moves and you're safe. They explode. If you fail they're driving you towards a jetty all the time, and it's an early bath for you.

Stage three is the 'Perfections Dance Puzzle'. This option is more along the lines of Mastermind. You must put a sequence of moves, each framed in a window, in the right order as shown by a dancer at the beginning. Time is against you. A good tip here is to do it a couple of moves at a time. Return to the windows to check if you've got it right (a ghettoblaster appears in the frames you have correct).

The only creative and realistic option is the fourth. In this you have to build up a sequence of steps, there are fourteen possible moves including the moonwalk, head spin and suicide. The last of these is particularly aptly named because your man (no women here) does a forward flip and lands flat on his back.

Finally you get to do all of the first three options to make it into the 'Breakdance Hall of Fame'. The music isn't exactly hard core hip-hop stuff, although one of the tunes is quite pleasant.

Break Fever is the second of the dance-craze games hoping to capitalise on the most popular playground pastime since smoking behind the bike sheds became untrendy.

Interceptor's version offers six different routines — some of them street-authentic like the Turtle, head spinning, and the back slam and some entirely new ideas such as 'The Shuttle'.

Each time you attempt a dance step you are given a jive-talkin' assessment of how you performed. The language is amusing for the first few goes. Words like "slack", "crucial", "stylo", and "awesome" have a certain fascination for an ageing hippy like me.

The novelty soon wears off though — especially when, on your umpteenth failed attempt at a head-spin, you get told that "you is bad news". It tends to be reach for the off-switch time.

Some of the routines are extremely difficult to master. The idea is to keep spinning, flipping, or donkey kicking. The control required from the joystick, however, is just too finnicky. The dancer is quite small on screen which also makes it difficult to tell whether or not you are doing what you are supposed to be doing.

On the plus side the graphics and music set the scene for the game excellently. There is an authentic hip-hop sound track that plays through several different versions to avoid monotony.

Despite this smooth presentation the whole package does not provide an entertaining computer game. If you want to break with your 64 we advise you to check out Breakdance instead — now available on cassette.

Gryphon
Commodore 64
Quicksilva
Price £7.95/cass

Presentation:
Skill level:
Interest:
Value for money:

The shoot 'em up seems to be back in fashion this month.

Tony Crowther's offering fits this description exactly. You are the Gryphon — a mythical giant flying bird. Spook-like creatures are after Gryphon's stack of gold bars. Armed with bolts of magic you must shoot them down in a fast and furious spot of zapping.

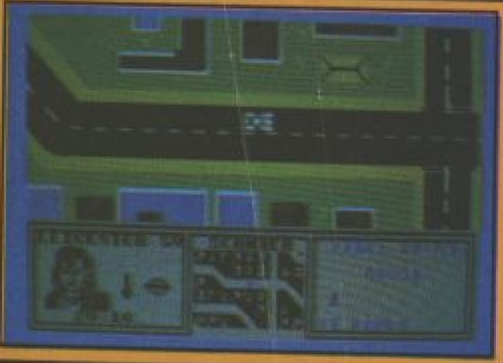
To protect the gold, Gryphon must transport it from the left of the screen to the right — picking up each bar, one by one, in his beak. On the second trip the spooks have turned into equally deadly spinning black balls.

The trademarks of Tony Crowther are all here — colourful graphics fill the screen with colour, all movement is smooth and convincing, and the game has great speed.

Despite all this, Gryphon does not quite come off. All the ingredients are here but they don't blend to make an enjoyable, playable game.



SCREEN SCENE



Give My Regards to Broad Street
Commodore 64
Mindscape
Price £7.95

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■■■□

McCartney approved the design of this game and gave firm instructions to the programmers that the game should be non-violent and about London.

Give My Regards to Broad Street certainly involves a lot of London with a beautiful scrolling map of the capital. This is the nearest thing to a computerised A to Z I have seen — with all the famous streets of central London included in the map — and all the tube stations.

Find ten missing musical notes, take them to Abbey Road Studios, and re-mix them to make the tune — No More Lonely Nights.

Each note is held by a member of the band. From the information you are given about each person, favourite pubs, where they like to shop or have their hair done, you have to track them down. Meetings take place



Cauldron
Commodore 64
Palace Software
Price £6.95

Presentation: ■■■■■
Skill level: ■■■■□
Interest: ■■■■■
Value for money: ■■■■■

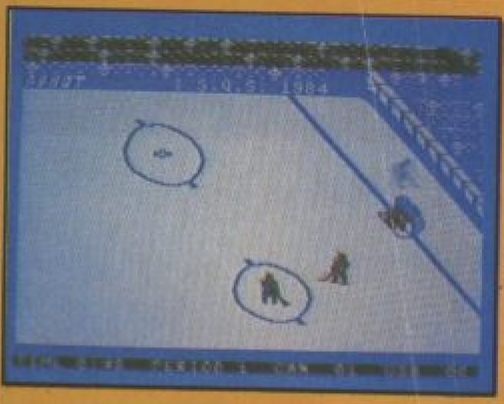
Cauldron is one of those games where you can just pick up the joystick and play. No training modes, no 100 page novelettes to set the scene.

But don't let me give you the impression that this game is a pushover. It's the most cunningly planned arcade game I have come across for some time.

You play the part of a witch seeking the golden broomstick. This will enable you to become Witch-Queen on Halloween night and rid the land of the Pumpkins.

But before you can get into the Pumpkin room to claim the broomstick you must first mix a spell requiring ingredients from different places.

The game has two main play areas — a horizontally scrolling world with the witch's cottage, forests, shark-infested seas, and rocky ridges. Also on this level are four doors down to networks



Slap Shot
Commodore 64
Anirog
Price £8.95/cass
£10.95/disk

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■■□□

Right, get your skates on we're going to play ice hockey. *Slap Shot* is yet another team sports simulation, and as such is a creditable attempt to recreate the elements that make it such a fast and violent game. Unfortunately, you can't play the computer so this one is hardly bed-sitter material.

Naturally, you control one player at a time, manoeuvring him down the ice towards the opposition goal. The pitch is a rather flat representation, which makes it difficult to shoot and pass accurately. This is made up though by the smooth, frictionless movement of the puck across the ice. It rebounds nicely as well.

The best feature of all, though, is the bodychecking facility — ice hockey is after all a rough 'n' tough game. Stand 'over' your opponent and hit the joystick button and you'll dump him on his behind. Great stuff. You can even do it when you have possession, but you have to be



Shadowfire
Commodore 64
Beyond
Price £9.95

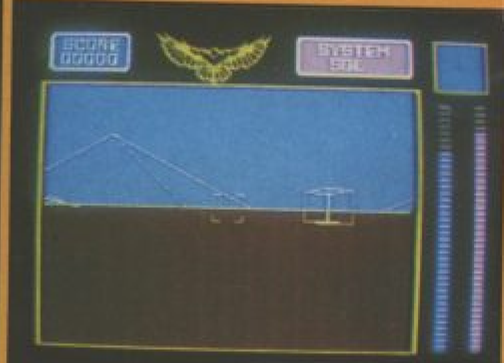
Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■□□

Beyond's latest game 'Shadowfire' is described as "a text adventure without text". Instead of typing in a normal adventure command such as 'get', 'east', 'west' or whatever, you simply move an on-screen cursor to an icon which represents the required action. Press fire — and the command is implemented.

Without doubt a novel new way of playing adventure. I am sure we will see this technique used a lot more in the future.

But what about the game itself? The plot is impressive enough. You have to get six tough heroes abroad an alien spacecraft. Their aim is to rescue a kidnapped ambassador from the inter-galactic dictator — General Zoff.

Characterisation of the individual characters is better than



Stellar 7
Commodore 64
US Gold
Price £9.95/cass
£12.95/disk

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■■■□
Value for money: ■■■■□

3D vector graphics eh? In another lingo that could read "wire-framed" structures displayed in full perspective. *Encounter* came to mind straight away but Stellar 7 lacks the pulsating immediacy of that scintillating space punch-up. However this piece of slick coding gives the connoisseur a turn in the driving seat of a hover-destroyer. The screen is separated into a "view window" (with telescopic zoom facility) and peripheral energy, shield and radar gauges. Defensively your ship, the Raven, has an invisibility gizmo while offensively she totes a cannon firing twin bursts.

The mission briefing catalogues enemy craft, missiles and gun batteries, graphically pirouetting them before leaving you to gen-up on their weaknesses and capabilities from the data provided.

As you scoot around just above the surface, avoiding the

at the tube stations. Keep an eye on the traffic wardens who will clamp the parked Paulmobile.

It took six ex-Imagine programmers three months to write this game — and a superb job they made of it. The 900 screen map of London is a masterpiece. I would put a slight question mark over the lasting interest of Broad Street, but it's a value for money package at £7.95. Good game, shame about the film.

of rooms. This is where you will find the ingredients to mix your spell. There are a couple of added complications. You can only carry two items at a time — and you also have a limited amount of energy.

It's impossible to fault Cauldron. They've got everything right. Splendid graphics, interesting plot, and above all challenging and entertaining game play.

careful otherwise you'll release the puck. Do it too often and you'll incur a 'roughing penalty'. Pity there isn't a facility for a huge punch-up though.

Slap Shot is good but it could be better. Passing is difficult, sometimes the puck will pass right through a team mate. That is if you can direct it well enough. You can't change your team colours and it's a bit difficult to distinguish which player on the grey side you have under control. Could be faster too.

on any other game I have seen.

Beyond are not saying how the characters have to work together to free the ambassador but clearly a team effort is required.

Shadowfire creates a total atmosphere that gamers can lose themselves in — the essence of a good adventure. The revolutionary icon game-play technique is the icing on the cake.

cuboid obstacles, you soon appreciate that there are very few sitting ducks, some of the opposition being able to fly over your head. Before the gate to the next stage appears you must lift a certain number of scalps so you need to be pretty sharp.

Each phase is set in a different colour scheme but more importantly the foe are mustered in new formations. Forget the sound, but the graphics are interesting.

SCREEN STAR

Impossible Mission
Commodore·64
Epyx
Price £8.95/cass
£11.95/disk

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■■■■
Value for money:	■■■■□





When I was a kid I used to watch all those spy programmes, like the Man from Uncle, the Avengers, The Prisoner (didn't understand it) and the Saint to name but a few. One of my favourite programmes was Mission Impossible. I wanted to be a secret agent.

When I grew up a bit I realised you could get hurt doing that kind of thing. But now I can return to my childhood ambition from the comfort and safety of my home with Epyx's chart-topping recreation of those halcyon days: 'Impossible Mission'.

The game itself bears no real resemblance to the series, which is just as well, it would be a bit of a rip-off if the tape self-destructed after five seconds. Billed as an 'action game' it has adventure undertones, is joystick controlled, and has impressive arcade-style screens.

Your mission (should you accept it, of course) is to stop a nutty professor from triggering a nuclear attack that will destroy the world. Penetrate his underground stronghold, evade the robot guards, break the security code, and find the control centre. Simple as that. Well, not really.

The game has two integrated parts. In the first, you must search the 32 rooms in the stronghold and secure the passwords. This constitutes the most enjoyable part of the game. You travel up and down the complex in a lift searching for the articles in each room where the absent-minded professor has secreted the passwords. You do this by standing in front of each item and holding the joystick forward. You can also find 'snooze' symbols which you can deactivate the robots with, or lift symbols which put the platforms back in their original positions — useful for leaving a room intact, or returning to it later.

Each room is divided up into a series of catwalks through which you work your way platform-style, avoiding the nasty robots. You do this by subterfuge and a

ACTION FREEZE

Top: the lift; travel up and down the underground complex. Hitting the joystick button puts you into your pocket computer. Centre: flip around the catwalks to search the furniture. The floating ball zaps you instantly. Bottom: the computer terminals are situated at entrances and exits. Log on to deactivate robots or reset platforms.



quick snap of your joystick button, which causes your agent to somersault stylishly out of trouble. This man is cool! Occasionally though your man will lose his bottle and freeze on the spot. Then you get fried — that costs you time, and you've only got six hours to save the world!

On to the second part. When you have collected enough passwords log in to your 'pocket computer'. You now have to put the pieces together to form a computer punch card. I must admit I had a bit of trouble cracking this bit, but if you get fed up you can always go and search a few more rooms. Nine puzzles, four pieces per puzzle. Earn extra pieces in the code rooms by arranging musical notes in ascending order.

Impossible Mission will have you hooked. The sound effects throughout are delightful. Apart from the constant electric buzzing of bad-tempered robots you get the voice of the mad professor setting them on you. I especially like the eerie, echoing footsteps of agent 4125 as he runs down the corridors. Best of all is the horrible, strangled yell he lets out when he falls through a hole in the floor and off the screen.

The graphics are exceptionally sharp and realistic, whilst the game has enough elements to provide constant variation. You have to think about what you're doing rather than just react to situations. And if you get smart enough to solve it all and save the world you can start again with everything rearranged. Do you accept this mission? I do.

THE SMASH HIT COMPUTER GAMES PACK



SPECTRUM 48K

TAPE A
3D STARSTRIKE (Realtime Software)
BLUE THUNDER (Elite)
SON OF BLAGGER (Alligata)
AUTOMANIA (Mikro Gen)
BUGA-BOO (Quicksilva)

TAPE B
PSYTRON (Beyond)
WHEELIE (Microsphere)
FALL GUY (Elite)
BLADE ALLEY (P.S.S.)
PENETRATOR (Melbourne House)

BEAU-JOLLY

COMMODORE 64

TAPE A
TALES OF THE ARABIAN NIGHTS (Interceptor Micros)
POSTER PASTER (Taskset Ltd.)
FLIGHT PATH 737 (Anirog)
PSYTRON (Beyond)
SON OF BLAGGER (Alligata)

TAPE B
SUPER PIPELINE (Taskset Ltd.)
TROLLIE WALLIE (Interceptor Micros)
AUTOMANIA (Mikro Gen)
GHOULS (Micropower)
BOOGA-BOO (Quicksilva)

AVAILABLE AT:
W H SMITH BOOTS MENZIES F W WOOLWORTH GREENS RUMBELOWS LASKY'S CURRY'S H.M.V. ASDA TESCO GRANADA CO-OP TIGER DEALERS AND ALL GOOD COMPUTER SHOPS

SCREEN SCENE

Skramble
C16 & Plus/4
Anirog
Price £6.95

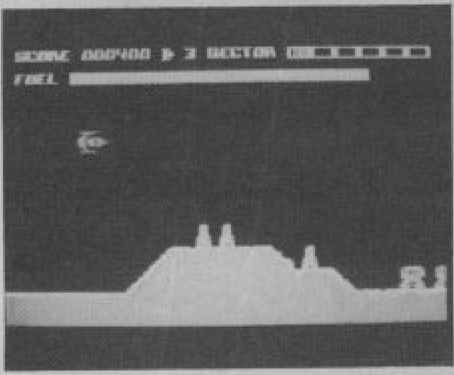
Presentation: ■■■□□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■■□□

A fairly faithful rendition of the similarly misspelled and now somewhat dated arcade game.

Your mission is to negotiate a path through the craggy terrain obliterating everything in sight. Ground based targets to watch out for include fuel dumps which, when hit, gain you extra flying time and rockets which if not destroyed launch directly into your path necessitating either some nifty manoeuvring or a bit of hasty trigger work.

Keeping your ship in one piece becomes progressively more difficult. In all there are six different sectors to bomb your way through, the last being the nerve centre of the enemy defence.

Whilst it can hardly lay claim to being the most original and innovative game of 1985, Skramble is nonetheless probably a worthwhile addition to the C16/Plus4 owners' games library.



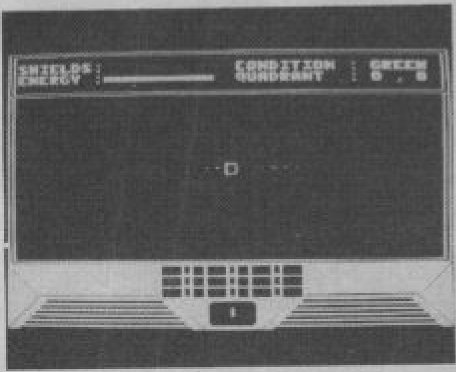
3D Time Trek
C16 & Plus/4
Anirog
Price £6.95

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■■■□

This is reminiscent of Quicksilva's Timegate on the Spectrum. Your task is to rid the galaxy of marauding aliens. The game comprises a mixture of strategy and arcade action. You are in control of a super-powerful starship. The galaxy is divided into forty-nine quadrants and using the navigation computer you must jump from quadrant to quadrant wiping out aliens en route.

On arriving in an alien-infested sector it is a wise move to use the battle computer to allocate energy to the shields, check on the size of the enemy strike force and look your own ship over for any damage sustained.

The graphics, while not brilliant, are among the best I've seen on the C16. In view of the current dearth of good software for the C16/Plus4 this is certainly worth looking at. A more reliable Turbo Load would be appreciated, though, Anirog.



Penetrator
Commodore 64
Melbourne House
Price £6.95/cass

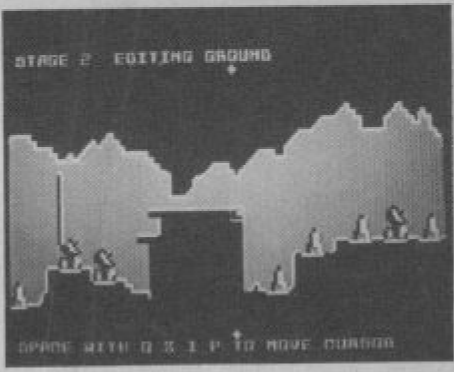
Presentation: ■■■□□
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■□

This is another version of that classic Scramble, and as such is a good rip-off with original twists including a landscape editor which enables you to create your own cities and fortresses.

The objective of Penetrator is to fly through the four main stages of the game to destroy a nuclear arms cache. Points are earned by shooting ground missiles, flying missiles, radar installations, paratroopers and, finally, the nuclear bombs.

This is one of those games where you have to bomb and fire as quickly as possible if you are to earn as many points as possible.

Reasonable sound effects and good graphics make this an enjoyable *Scramble* game. Penetrator has the edge over the other versions thanks to its landscape editor. It has taken Melbourne House an age to convert this Spectrum game — but it's worth the wait.



Bigtop Barney
Commodore 64
Interceptor
Price £7.00

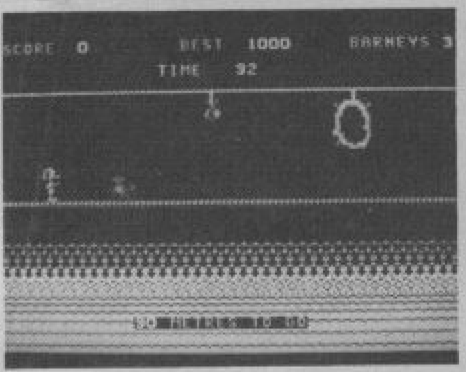
Presentation: ■■■■■
Skill level: ■■■□□
Interest: ■■■■□
Value for money: ■■■■■

It's big top music all the way to complement the original graphics. Four circus acts, each graded for difficulty, have three helpings available, making twelve frames in all. Considered as easy, level one of the first act has you walking a tightrope, somersaulting over chimps and through fiery hoops to earn the applause of the crowd. Clever scrolling makes it all a believable experience.

In the second act, which is in the platform idiom, note that the performing sea-lions toss around clown-destroying balls thus adding to the difficulty of collecting balloons and dodging the strongman.

Next, ride a unicycle, jumping from the saddle to bounce off platforms. Not easy when the hurdles come thick and fast.

I really enjoyed this fun-package and consider it excellent, imaginative and addictive.



Pastfinder
Commodore 64
Activision
Price £9.95

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■□□□
Value for money: ■■□□□

The Pastfinders are an elite corps of space explorers who travel the galaxies in the distant future.

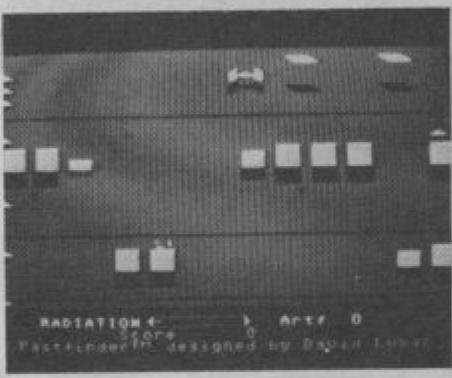
As you travel the strange futuristic planets a map on a second screen gradually unfolds. Various artifacts must be picked up and deposited in the correct place as you seek to discover the strange mysteries of the past.

Control of the craft takes a bit of getting used to. It leaps off the ground and bursts forward at considerable speed.

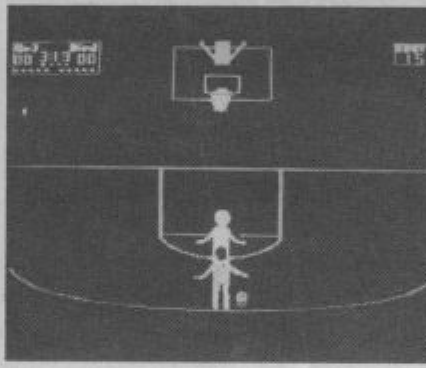
The instructions for Pastfinder are a little vague. But this is not too much of a problem as the whole thing has the flavour of an adventure about it anyway.

This game has some very impressive graphics: three dimensional spinning and rotating objects with accurate shadows.

An above average game that fails to reach Ghostbusters standards and doesn't really break any new ground and is a little pricey at £9.95.



SCREEN SCENE



One on One
Commodore 64
Ariolasoft
Price £9.95/cass
£12.95/disk

Presentation: ■■■□□
Skill level: ■■■□□
Interest: ■■□□□
Value for money: ■■■□□

V's

International Basketball
Commodore 64
Commodore
Price £5.99/cass

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■■■□
Value for money: ■■■■■



Two basketball simulations on offer here, with two different approaches. Andrew Spencer's Commodore offering follows the effective style of International Soccer, with a few improvements, whilst Ariolasoft's approach is to pit two players in a 'one on one' situation.

The former game has a faster, more competitive feel to it. Ariolasoft's idea to take two famous American basketball players, Julius Erving and Larry Bird, study their styles and pit them against each other, is not altogether convincing. Whilst you obviously have two different styles, one man being faster on the turn, the other better at shooting, the graphic representation of them is not so hot. It also proves to be rather frustrating if you're in control of a player who doesn't do something as well as the other one. You are limited by his capabilities as well as your own.

You do not really have to try when you shoot, because the shot is focussed for you. It might hit the rim so you have to follow up, but you won't miss abysmally. The nicest skill touch is the feature which allows you to spin your man 180° with a quick stab of the joystick button. This adds a touch of realism which is otherwise missing in this program.

International Basketball in comparison lets you get to grips with end to end play. You can — and have to — pass. You can change the player you control by stabbing the joystick button and thus move quickly downfield. Like the soccer you get that 3-D shadow effect and the nice bouncing ball sound. When you shoot you do have to attempt some degree of accuracy as well.

The Commodore version also has a foul facility. Five fouls result in a penalty and after that you're in trouble because every subsequent foul results in two free shots. So keep it clean!

Both games have different levels of difficulty and the facility for two player competition or just you and the computer. Different rules can also be applied. Added extras in One on One are an instant replay, which is a nice touch, and a shattering backboard which is a pain, because you have to wait until a little man has come along and cleared up the pieces before you can continue the game.

The Commodore version still has those annoying piercing whistles before each phase of play. Turn the computer down though and you lose the bouncy ball sound. A bit more crowd noise would have lent it atmosphere but it has enough to get by without such frills.

With more frills One on One still wouldn't be good enough to compete. Plenty of thought obviously went into the gameplay, but that doesn't mean the end result is good enough. It's too much like practice and the graphics aren't strong enough to add any realism. Doctor J and the Bird, as they're known, look a bit stick-insecty, and the court is a few neon lines with all the action contained at one end, making it look more like a bar sign. If you make a steal you cannot go on to score unless you were not in possession in the first place.

So if you want basketball it's got to be Commodore, though if you've already got the International Soccer I'm not sure you'll want more of the same kind of style. Having said that, though, International Basketball does have just about all the elements you need for a realistic simulation.

Personally, if you want a good sport simulation I'd go for the football version, to which International Basketball is very similar, but then I hated basketball at school. How about a proper cricket game along the same lines Commodore?

Hyper Circuit
Commodore 64
Alligata
Price £6.95

Presentation: ■■■■□
Skill level: ■■□□□
Interest: ■■□□□
Value for money: ■■□□□

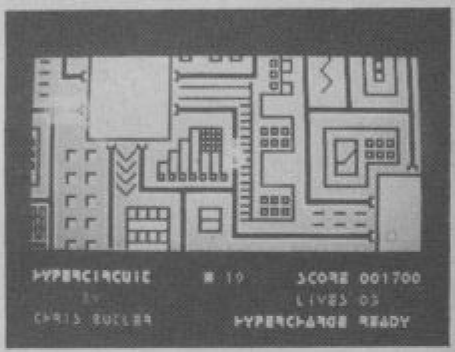
Alligata pitch into the springtime battle of the shoot 'em ups with Hyper Circuit.

The action takes place inside a microprocessor board where the micronasties are waging war on all the vital components. You are at the controls of a miniaturised jet-blaster inside the computer.

The nasties come in all shapes and sizes — sparks that travel along the soldered circuits, energy bulges — big ugly seething masses these ones, and the alien planes that have also been miniaturised and are there to stop you.

You can only shoot your electro-blasters along the set routes of the solder circuits, so you have to work out a path of fire that will eliminate a micro nasty before you press the fire button.

The graphics and blasting are fun but the game lacks depth.



Gribley's Day Out
Commodore 64
Hewson Consultants
Price £9.95/cass

Presentation: ■■■■□
Skill level: ■■■□□
Interest: ■■■□□
Value for money: ■■■□□

Gribleys are the cutest computer game characters to appear on my 64 since Pacmen, Q'berts, and Snokies.

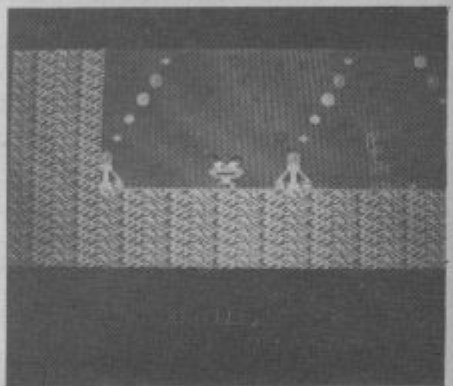
The object of the game is to catch the flipping, fish-like creatures that are hopping about on the bottom of the screen. To catch them you simply land on them feet first, then take them to the caves at the right of the picture.

To make things more difficult there is a chequered electric fence that divides up the screen. This impedes Gribley's progress on his rescue mission.

You have a limited amount of energy and this can only be replenished by catching the falling thingies on later screens.

Gribley's only defence is the green rings that he breathes out, like bad breath, from his ever-smiling mouth.

Gribleys are just about cute enough, and the game just about good enough, to catch on.



VIC 20?

ORIC?

CBM64?

SOFTWARE?

DRAGON?

AMSTRAD?

BBC?

ELECTRON?

SPECTRUM?

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*PLEASE TICK WHERE APPROPRIATE

THE SOFTWARE TOP 20

GENERAL CHART

	Title	Publisher	Machine
1	GHOSTBUSTERS	ACTIVISION	64, Atari, Spectrum
2	ALIEN 8	ULTIMATE	Spectrum
3	RAID OVER MOSCOW	US GOLD	64, Spectrum
4	FOOTBALL MANAGER	ADDICTIVE	64, Spectrum, Amstrad, BBC, ZX81
5	BOOTY	FIREBIRD	64, Spectrum
6	DALEY THOMPSON'S DECATHLON	OCEAN	64, Spectrum
7	ZAXXON	US GOLD	64, Spectrum
8	IMPOSSIBLE MISSION	CBS	64
9	TECHNICIAN TED	HEWSON CONSULTANTS	Amstrad, Spectrum
10	BLOCKBUSTERS	MACSEN	64, BBC, Spectrum, Electron
11	COMBAT LYNX	DURELL	64, Spectrum, Electron, BBC
12	MANIC MINER	SOFTWARE PROJECTS	64, Spectrum, Amstrad, BBC
13	ELITE	ACORNSOFT	BBC, Electron
14	MATCH DAY	OCEAN	Spectrum
15	AIR WOLF	ELITE	64, Spectrum
16	HUNCHBACK	OCEAN	64, Spectrum, BBC, Vic, Amstrad
17	JET SET WILLY	SOFTWARE PROJECTS	64, Spectrum, MSX
18	STARSTRIKE 3D	REALTIME SOFTWARE	Spectrum
19	MONTY IS INNOCENT	GREMLIN GRAPHICS	Spectrum
20	FLIGHT PATH 737	ANIROG	64, C16, Vic 20, Amstrad, BBC

COMMODORE 64

	Title	Publisher
1	IMPOSSIBLE MISSION	CBS
2	GHOSTBUSTERS	ACTIVISION
3	FRAK!	STATESOFT
4	RAID OVER MOSCOW	US GOLD
5	DALEY THOMPSON'S DECATHLON	OCEAN
6	BOOTY	FIREBIRD
7	SLAP SHOT	ANIROG
8	LORDS OF MIDNIGHT	BEYOND
9	COMBAT LYNX	DURRELL
10	FOOTBALL MANAGER	ADDICTIVE
11	BRUCE LEE	US GOLD
12	HUNCHBACK 2	OCEAN
13	FIGHTER PILOT	DIGITAL INTEGRATION
14	POLE POSITION	ATARI
15	BEACH HEAD	US GOLD
16	CHILLER	MASTERTRONIC
17	FLIGHT PATH 737	ANIROG
18	JET SET WILLY	SOFTWARE PROJECTS
19	STAFF OF KARNATH	ULTIMATE
20	SOFT AID	VARIOUS

Charts compiled by Gallup for the week ending 5th March 1985.
As published in Computer Software Retailing.

THE BEST



Your journey commences in the village . . .



but soon thirst leads you to an Inn . . .

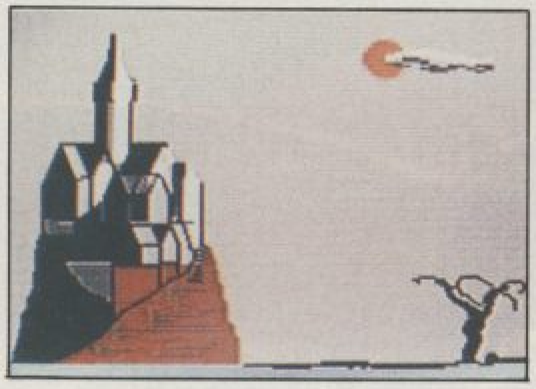


where you may be able to get useful information.

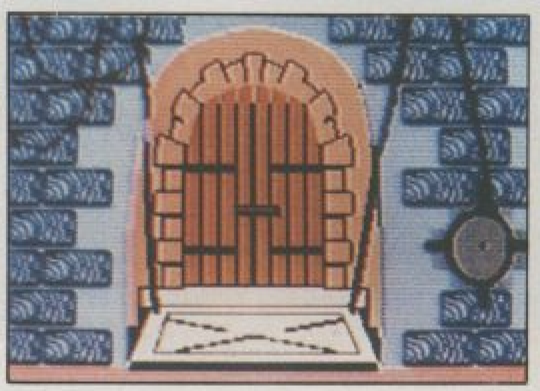
* Castle of Terror voted No. 1 Adventure game by Commodore User, March 1985.

THE BEST ADVENTURES

1. CASTLE OF TERROR
2. ~~Colossal Adventure~~
3. Zork III
4. Eureka
5. ~~Saga of Eric the Viking~~
6. THE HOBBIT
7. CLASSIC ADVENTURE
8. ~~Return to Eden~~
9. ~~Spiderman~~
10. SHERLOCK



At last you find the Castle . . .



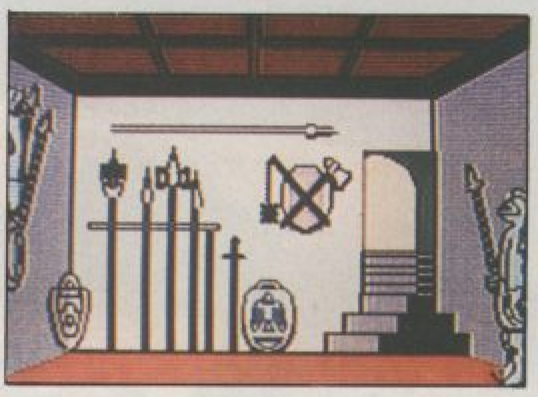
and with great trepidation, enter through the drawbridge.

Commodore User had this to say about CASTLE OF TERROR.

"The programmers all deserve credit for devising a fresh and enticing variation, and for graphics in terms of their details, colour, clever animated elements and speed. The music adds measurably to the atmosphere all the way through – and makes me extremely envious of what some programmers manage to coax".

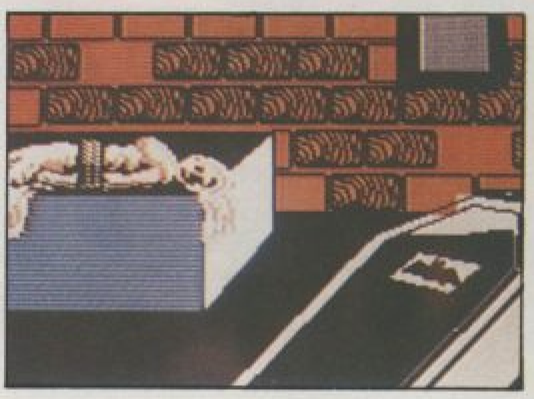


but you valiantly search on through the Castle.



You eventually find the armoury, and get a weapon . . .

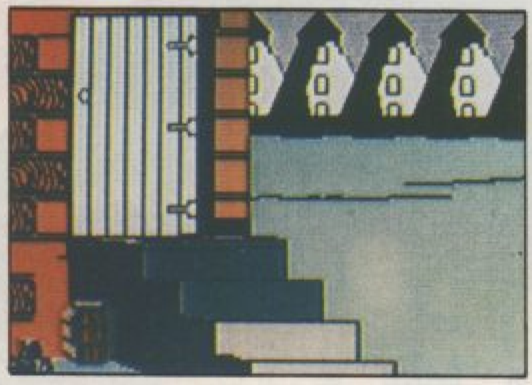
CASTLE OF TERROR is available for your Commodore 64 at £9.95 from the publishers of THE HOBBIT, CLASSIC ADVENTURE and SHERLOCK.



Will you ever manage to rescue the maiden?

CASTLE OF TERROR

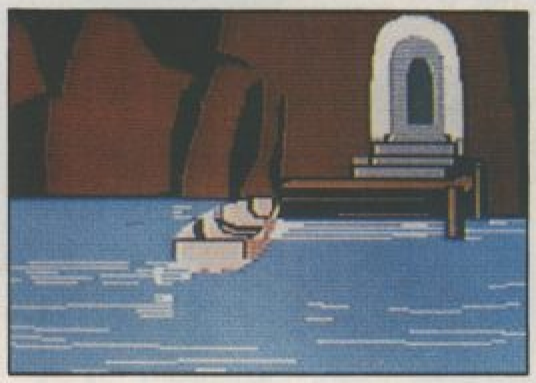
ADVENTURE*



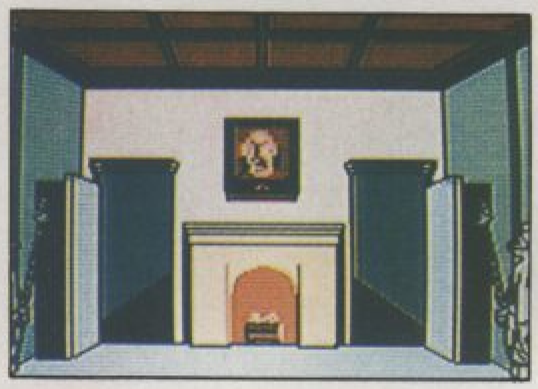
You set off for the Castle . . .



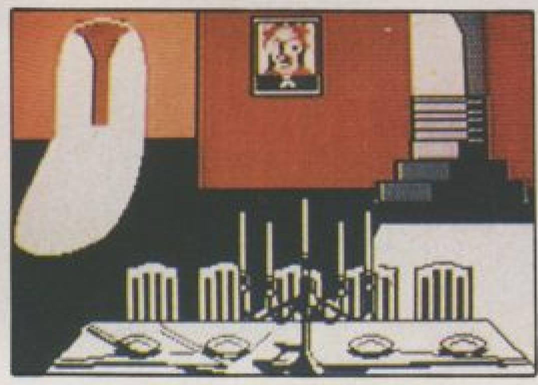
past the cemetery where a new grave is being dug.



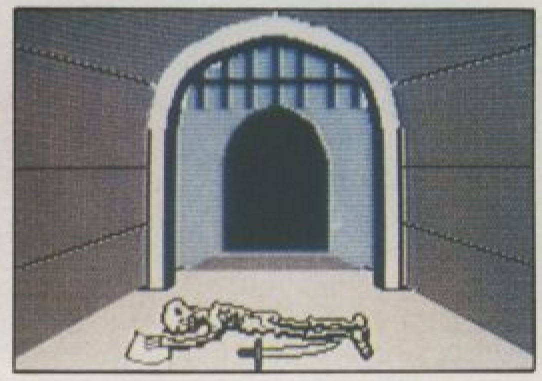
Can you find your way across the river?



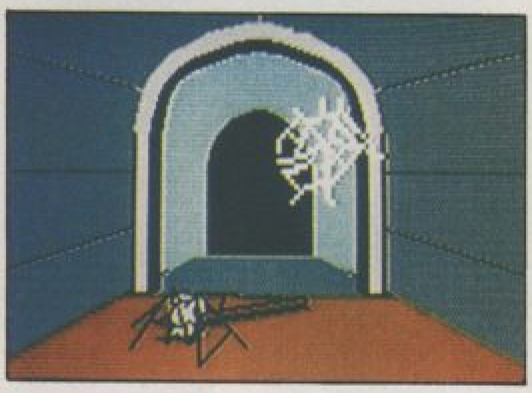
The entrance hall is guarded by knights . . .



but you manage to get past to the banquet hall.



As you wander you see you were not the first . . .



to support you as you wander the corridors.

TITLE	SPEC'M	CBM 64	BBC ELEC'N	AMST'D	CBM 16
Castle of Terror		●			
Sherlock	●	●			
Hampstead	●	●			
Classic Adventure	●	●	●		●
Hobbit	●	●	●	●	
Zim Sala Bim		●			
Grand Larceny		●			
Mugsy	●	●			

by MELBOURNE HOUSE





Inside and out, at the Francis Combe School

A TOUCH O

Commodore computers in schoo

Did you know that over 95 per cent of schools in the UK now have at least one micro, thanks to a government run scheme to fund half the cost? But grants to secondary schools were made available only for the BBC micro and the RML 380Z. So that's why you don't see many Commodore machines in the classroom. However, the Francis Combe School near Watford has a whole heap of Commodore hardware. Why did they buy Commodore? And what are they doing with their computers? Valerie Buckle went back to school to find out.

Although the government scheme to fund half the cost of micros in education has now ended, it did provide the means for almost every school in the UK to own a micro. Not only that, two teachers from each school were given the opportunity to take training courses. So it sounds as though computing in schools is alive and thriving. Maybe, but with the realities of restricted resources, congested timetables and lack of trained staff, the situation doesn't look quite so rosy.

Also, since most schools use the BBC micro and the RML 380Z, educational software is developed mainly for those machines, leaving the rest out in the cold. So what about the schools who don't use the BBC micro, who've opted for Commodore products — like the Francis Combe School?

The Francis Combe School in Garston near Watford is a typical secondary school except for the fact that Commodore machines form the core of the micros used there. Seizing this opportunity to see for myself how micros are used in schools, I travelled up to Garston to check out the performance of Commodore machines in that most demanding of environments — the comprehensive school.

First steps in computing

The history of the Computer Centre at the Francis Combe school is fairly typical of any secondary school. Until the government scheme began in 1981, micros were expensive luxuries which found no place in the tight budget. With government help, Francis Combe managed to buy an RML 380Z, hoping to equip the whole Computer Centre with them.

Typically, the one staff member who showed an interest in computers was encouraged to take responsibility for the new machines and thus the burden fell to the enthusiastic Chemistry teacher, Jamie Freedman. "I had had a fair amount of experience of using Commodore Pets in the past and computers are one of my hobbies so I found the prospect of setting up a Computer Centre quite challenging."

But money became tight and the school was left with just £800 as a one-off concession to buy micros. That couldn't cover even the cost of one more 380Z, so Jamie Freedman had to start searching for an alternative that would fill all his requirements. "I was looking for a micro that was robust, cheap but good value for money, could be expanded at a later date and had come from a well-established company", he remembers.

Going for the Vic

The Spectrum may have seemed an obvious choice but, having decided that it would not stand up to use in the classroom, was rejected in favour of the Vic 20. The school is now equipped with eight Vic 20s, a Commodore 64 and the 380Z.

So, having bought the micros, what about peripherals? Reconditioned colour televisions provided a cheap alternative to monitors, but the school does hope to buy a colour monitor in the future. The 1525 printer, two 1521 disk drives, 1520 plotter, DPS 1101 printer and Compunet modem complete the picture.

Equipping a Computer Centre is an expensive business so I asked Jamie Freedman how he manages? "Frankly, lack of money is a major problem. It may sound as if we have a lot of equipment, but when you consider that there are over 1000 pupils in this school, this amount of hardware just doesn't go round". The Parent/Teacher Association has helped out in the past with money to buy hardware but with each department facing cutbacks there is a limit to the amount of money available to the Computer Centre.

FCLASS

ols

by Valerie Buckle

packages on the market. Commodore's own software is thought to be of a very high standard with programs such as Easy Script and Simons' Basic (to overcome the shortcomings of Commodore Basic) in constant use. Being unable to afford some of the extortionate prices asked by commercial firms, they are eagerly awaiting the arrival of their Compunet code in order to access the free software available. ICPUG is another source of valuable help and both pupils and teacher regularly read many of the 'quality' computer magazines.

Since founding the Computer Centre, Jamie Freedman has virtually had to go it alone. "The other members of staff are very interested in what we do, but there is no one else here who participates in the activities of the Centre or who even has a computer." He hopes that the Centre will expand in the future and that another staff member will be appointed to help out with the organisation and teaching, bringing new ideas and areas of expertise. Several staff at the school have been on training courses and are interested in using computers in their lessons but the problem of finance seems to nip any enthusiasm in the bud.

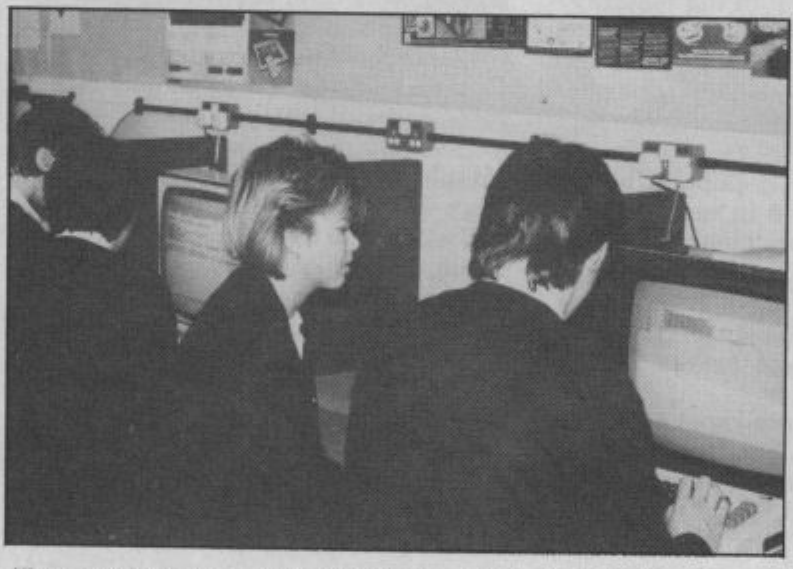
Using the computers

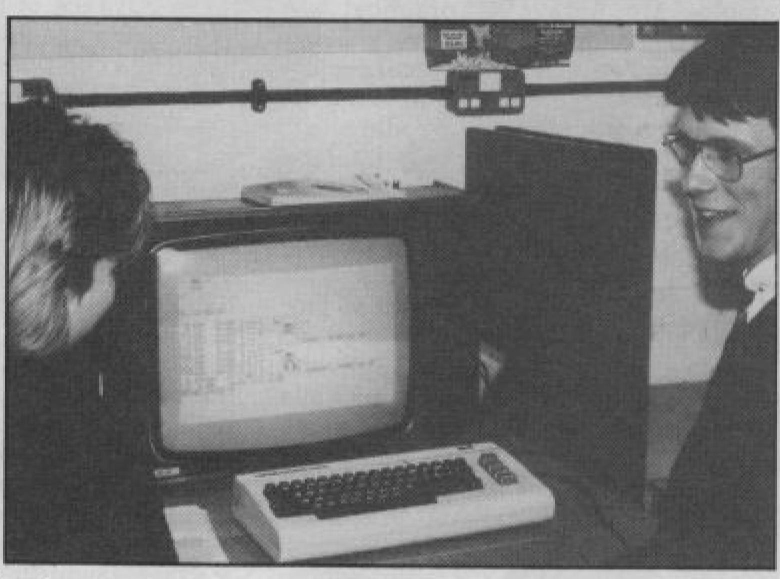
So how does Francis Combe use its computers?

Two main areas are covered by the current timetable: Computer Science and Computer Literacy. Both are optional and are available only if the pupil's timetable allows. At the moment, Computer Science is being taught up to CSE standard but it is hoped to extend this to 'O' level soon. Obviously, many of the kids studying Computer Science have their own micros and find the syllabus set by the examination boards old-fashioned and boring. It's always difficult to stay up-to-date in the classroom but new subjects such as computing pose particular problems as methods change more quickly than the syllabus.

Visits to local firms help to keep the kids in touch with the way computers are used in the real world. They're introduced to as many broad concepts as possible so that they quickly pick up enough knowledge to enable them to write short programs in Basic. Ex-





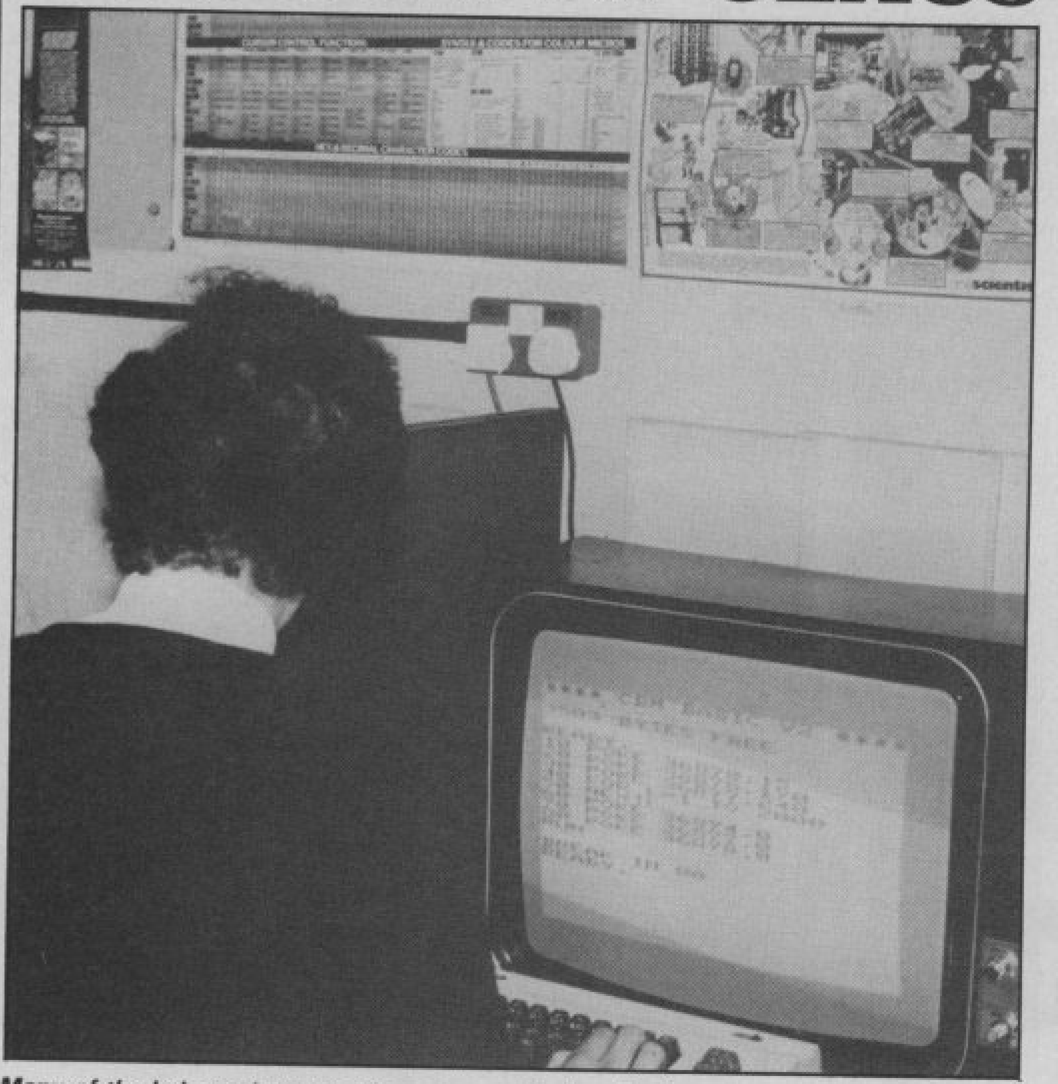


"It may sound as if we have a lot of equipment, but when you consider that there are over 1000 pupils in this school, this amount of hardware just doesn't go round"

The soft side

Software is also an on-going problem. The yearly budget has to cover mundane necessities such as text and exercise books so there is little, if any, money left over for buying up-to-date software. Jamie Freedman examines all the options very carefully before buying as he has to be sure he's making a wise choice with so little cash to spare. A firm favourite is the Koala Pad, a digitizing tablet which comes complete with one of the best graphic art

A TOUCH OF CLASS



Many of the lads are interested in more practical applications for their computers.

amples are always of practical use (such as a program to convert Centigrade into Farenheit). A typical project might be to write a routine to sort a list of names into alphabetical order.

But it is the Computer Literacy classes which present the greatest challenge in the classroom. And Jamie Freedman is particularly enthusiastic to make these widely available. "We hope to introduce these classes as part of the core curriculum within the next couple of years so that all the pupils will have some exposure to computers while at school." He sees the school as having a vitally important role in equipping the pupils with skills which will be relevant in their future careers.

"Computers will be involved in all areas of employment so it is our responsibility to see that the pupils have at least some familiarity with them." The current Computer Literacy classes include a general introduction to computer concepts, learning about and using wordprocessors, databases and spreadsheets.

Lunch-break computing

There's also a course in Basic for beginners once a week during the lunch hour. Numbers are high, as the kids seem keen to glean every last drop of information from the sources available to them. Is there a hard core of computer enthusiasts whose knowledge is far in advance of that of the majority? "Yes, there are a few pupils who have had home computers for some time and who have taught themselves, for example, Basic with little or no assistance."

I spoke to some of the pupils and found that, contrary to popular belief, many were interested in more serious applications for their computers than games. Designing sprites, writing a database and learning machine code are just three of the projects being undertaken right now by the kids in their spare time.

The majority of those I spoke to had a Spectrum at home, but I was assured that this was because of lack of finances and that they hoped to update as soon as they could. The Commodore 64 was a clear favourite, its large memory, sprites and excellent sound capabilities being the most sought after features. Although some were a little scathing about the Vics used at school, there was no doubt that they appreciated enormously the opportunities to further their hobby, and of course having a resident expert to help out with any problems is a great advantage.

I was particularly interested to hear how the girls had been encouraged to participate in the computer-orientated activities of the school and was disappointed to learn that only a small number had opted for either of the courses on the curriculum. None of the girls I spoke to owned or had access to a computer at home and so had not developed an interest in computing which may have pushed them towards further study. As long as these subjects remain optional, it seems that girls will shy away from an area in which the boys have already shown an aptitude unless they are actively encouraged to join in.

Commodore machines have now been in use at the school for over a year. Is the school satisfied with their performance? "Yes, on the whole we are pleased with the machines. They stand up well to classroom use and apart from the loose modulator on the Vics which has caused some problems we've no complaints". Back-up from manufacturers and dealers appears to be a stumbling block for most micro owners and the Francis Combe school is no exception — one of their machines languished for several months at Commodore. Imagine the headache of maintaining ten micros!

The view from Commodore

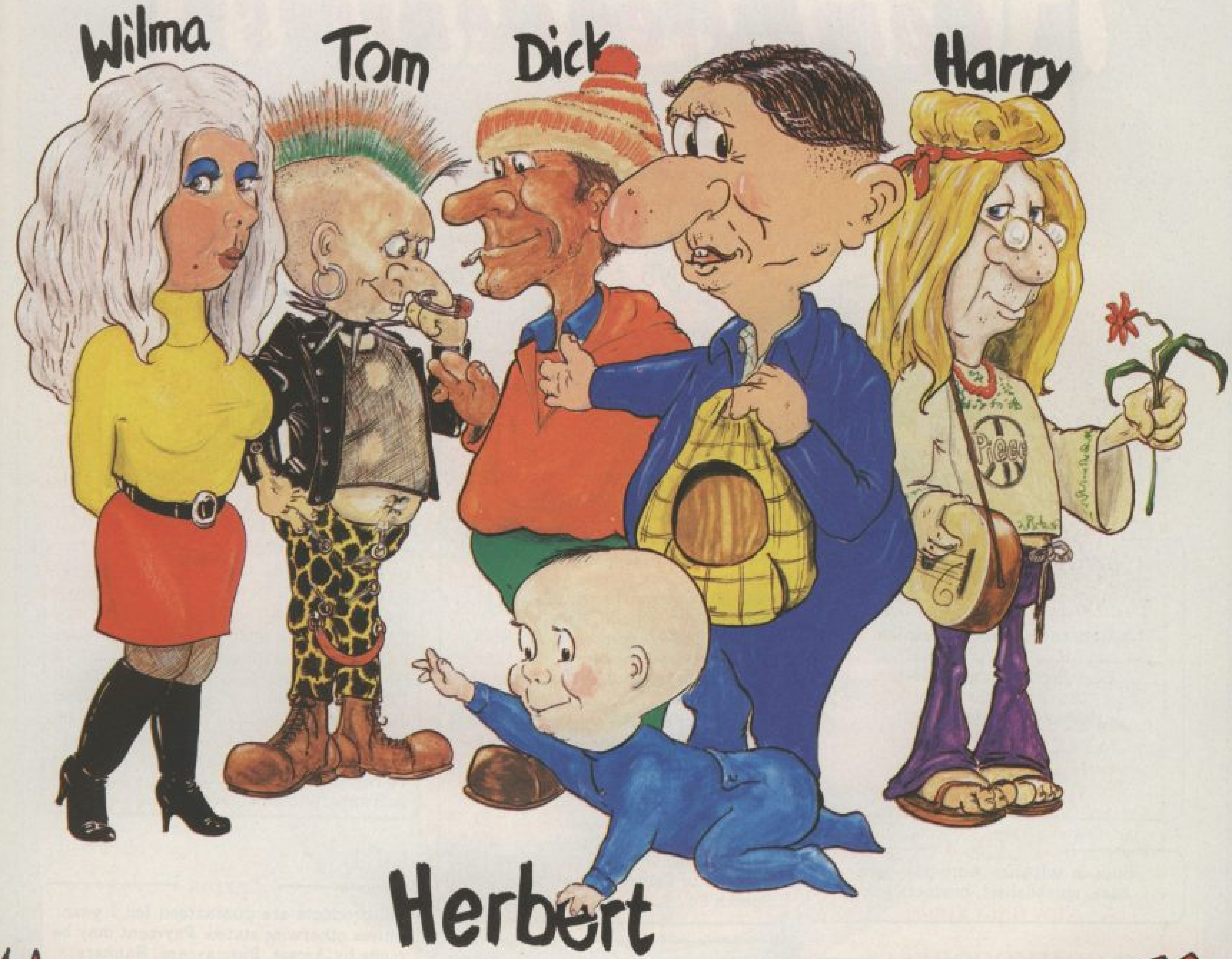
Commodore has always wanted to make a large impact on the educational field and has in the past arranged discount schemes and competitions to encourage schools to choose their machines for classroom use. The latest competition which also offers schools a free three months trial of a complete 64 system which may be purchased at the end of the trial at a 30% discount has, according to Commodore, had a large number of entries. Most of the schools taking part in the competition have also taken up the offer of the free trial.

Although pupils from the Francis Combe school have entered these competitions in the past, no volunteers came forward for this one. The "live" format of a quiz was generally considered to be unsuited to their skills. They are not participating in the free trial either, as the impossibility of their being able to raise the money needed for the system means that they do not wish to come to rely upon a system which will have to be returned at the end of the three months.

Commodore's plans for the future include further sponsorship of projects and competitions to consolidate their position in the educational field. More educational software providing quality at a reasonable price with particular emphasis on art and music packages is one of their immediate concerns. Just recently, Commodore announced a dramatic price-cut on the Plus/4 (see News pages) which should make its products more attractive to financially hard-pressed schools.

But if, despite Commodore's generous offers and price reductions, schools are still not able to raise the money, enthusiastic pupils and teachers won't be able to update their machines and keep abreast of current technology. Lack of resources are once again preventing our schools from making the best of these opportunities. □

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We also supply a range of dust covers, daisy wheels and other ribbons.

VICTUALS

HOW TO USE EASY ENTER

COLOUR CODES

[BLK]	– press CTRL and 1
[WHT]	– press CTRL and 2
[RED]	– press CTRL and 3
[CYN]	– press CTRL and 4
[PUR]	– press CTRL and 5
[GRN]	– press CTRL and 6
[BLU]	– press CTRL and 7
[YEL]	– press CTRL and 8

[ORG]	– press CBM key and 1
[BRN]	– press CBM key and 2
[L RED]	– press CBM key and 3
[GR1]	– press CBM key and 4
[GR2]	– press CBM key and 5
[L GRN]	– press CBM key and 6
[L BLU]	– press CBM key and 7
[GR3]	– press CBM key and 8

OTHER CODES

[CU]	– press 'cursor up' key
[CD]	– press 'cursor down' key
[CL]	– press 'cursor left' key
[CR]	– press 'cursor right' key
[HOM]	– press HOME key
[CLR]	– press CLEAR key
[DEF]	– press INST key (insert)
[REV]	– press RVS ON key (CTRL and 9)
[OFF]	– press RVS OFF key (CTRL and 0)
[SPC]	– press spacebar
[G<key]	– press CBM key with specified key
[G>key]	– press SHIFT key with specified key

EXAMPLES:

[3SPC]	– press spacebar three times
[5CD]	– press 'cursor down' key five times
[G>]	– press SHIFT key with 'F'

COMMODORE GRAPHIC CHARACTERS

These listings we generally run out on a letter-quality printer, though, and conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer, in which case you may see the standard control codes:

PRINT WHITE	E	FUNCTION KEY F2	
CURSOR DOWN	Q	FUNCTION KEY F4	
REVERSE FIELD ON	R	FUNCTION KEY F6	
HOME	S	FUNCTION KEY F8	
DELETE		PRINT BLACK	
PRINT RED	£	CURSOR UP	
CURSOR RIGHT	]	REVERSE FIELD OFF	
PRINT GREEN	↑	CLEAR	
PRINT BLUE	←	INSERT	
FUNCTION KEY FI		PRINT PURPLE	
FUNCTION KEY F3		CURSOR LEFT	
FUNCTION KEY F5		PRINT YELLOW	
FUNCTION KEY F7		PRINT CYAN	

EASY ENTER

VICTUALS

by Trevor Alborough

LARGE WORD PRINTER — FOR THE COMMODORE 64

```
10 REM LARGE WORD PRINTER
20 INPUT"[CLS]ENTER THE WORD TO BE PRINTED";WP$
30 IFLEN(WP$)>10THENPRINT"THAT IS TO LONG.":
   FORA=0TO255:NEXT:GOTO20
40 C$=""
50 IF((LEN(WP$))/2+(LEN(C$)))<=4THENC$=
   C$+" ":GOTO50
60 WP$=C$+WP$
70 POKE56334,PEEK(56334)AND254:POKE1,PEEK(1)AND251
80 FORA=0TO7
90 B$="":IF(LEN(WP$))+(LEN(C$))=9THENB$="[4SPC]"
100 FORB=1TOLEN(WP$)
110 A$=MID$(WP$,B,1)
120 PT=ASC(A$):IFPT>63THENPT=PT-64
130 PT=PEEK(53248+(PT*8)+A)
140 FORC=1TO8
150 READT:IF(PT AND T)=TTHENB$=B$+A$:GOTO170
160 B$=B$+" "
170 NEXTC:RESTORE:C$(A)=B$:NEXTB:NEXTA
180 POKE1,PEEK(1)OR4:POKE56334,PEEK(56334)OR1
190 OPEN4,4,1
200 FORA=0TO7
210 PRINT£4,C$(A);:IFLEN(C$(A))<>80THENPRINT£4
220 NEXT
230 CLOSE4
240 GOTO20
250 DATA128,64,32,16,8,4,2,1
```



There comes a time when small words just aren't good enough for the job you need to do, like designing posters, labels or perhaps a title page for your latest best-seller.

So here's a neat little program that prints up to ten large letters (made up of the original letter) and centres them on the screen. The program works on just about any 80-column printer. But you can adapt it to 40 columns, as follows:

Line 30 IF LEN (WP$) > 5 . . .
Line 50 . . . LEN(C$))) < 2 . . .
Line 90 . . . LEN(C$)) = 4 . . .
Line 210 . . . LEN(C$(A)) < > 40 . . .

You can achieve some special effects, too, like reversing the letters whilst retaining their order. Just alter line 250 to read:

250 DATA 1, 2, 4, 8, 16, 32, 64, 128

To get 'true mirror' writing, you'll have to change line 100 to read:

100 FORB = LEN (WP$) TO1STEP−1

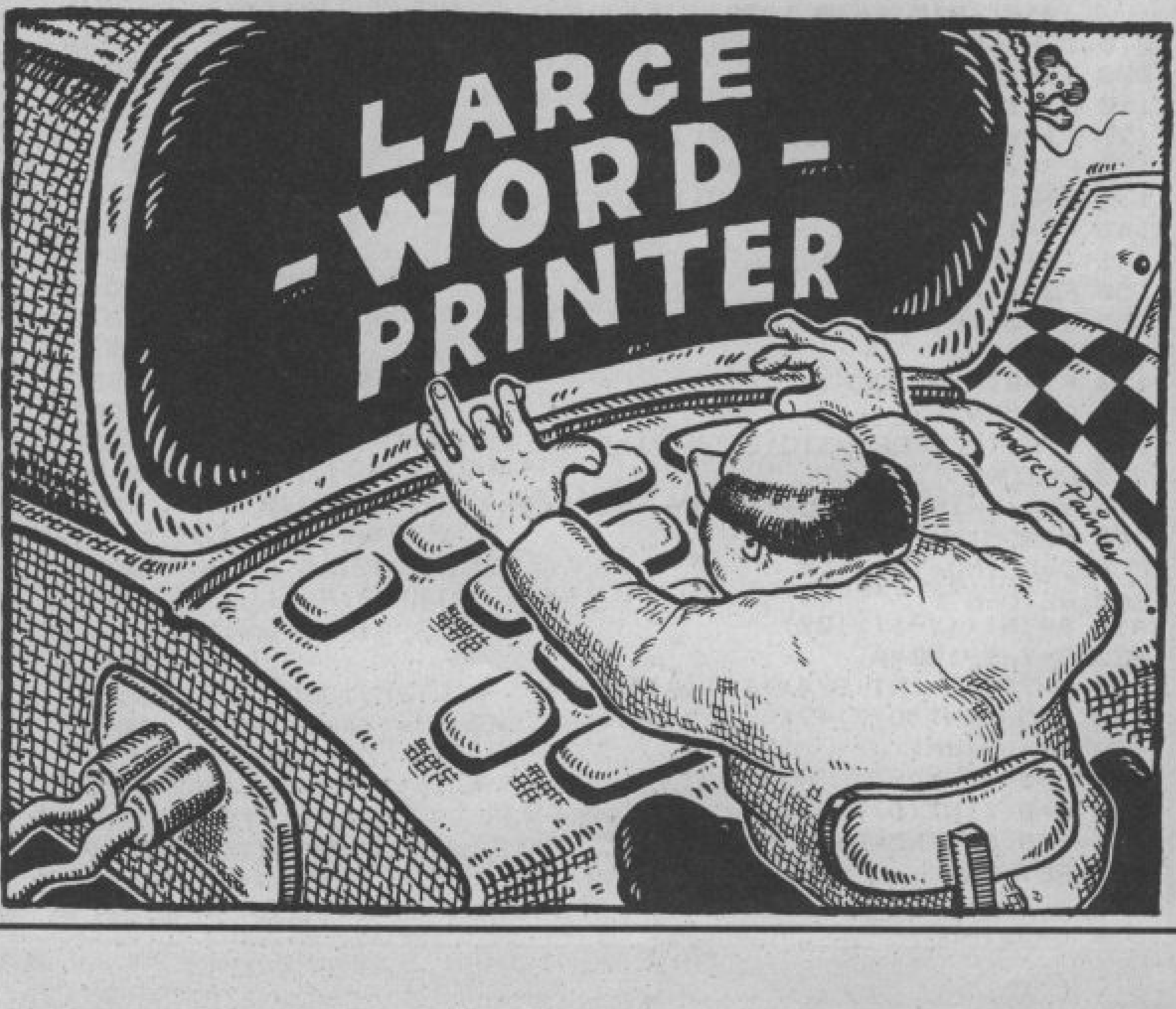


ILLUSTRATION: ANDREW PAINTER

VICTUALS

MAKE A DATE — FOR COMMODOR 64 AND VIC-20 WITH 3K EXPANSION

```
10 GOSUB810
100 FOR MENU  = 1  TO 2 STEP 0
105 PRINT"[CLS]*** CALENDAR MENU ***"
110 PRINT:PRINT:PRINT"[REV]1[OFF].DAYS BETWEEN DATES"
115 PRINT:PRINT"[REV]2[OFF].DAY OF WEEK"
120 PRINT:PRINT"[REV]3[OFF].DAYS LEFT IN YEAR"
125 PRINT:PRINT"[REV]4[OFF].DISPLAY MONTH "
130 PRINT:PRINT"[REV]5[OFF].PRINT MONTH CALENDAR"
132 PRINT:PRINT"[REV]6[OFF].EXIT TO READY MODE"
135 PRINT:PRINT:PRINT"WHAT'S YOUR POISON";
136 GETN$:IFLEFT$(N$,1)<CHR$(49)ORLEFT$(N$,1)>CHR$(54)THEN136
137 N=VAL(N$):PRINTN
138 FOR J=0TO400:NEXT
140 ONNGOSUB5000,6000,6000,8010,9001,10000
170 NEXT MENU
810 DIM DM(13),MO$(12),DO(6),MATRIX$(6,6)
815 J=0:K=0:L=0:A=0:B=0:C=0:D=0:Y=0:DD=0:MD=0:DY=0:YD=0:MM=0:
    Y1=0:Y2=0:D1=0:D2=0
820 DATA 0,0,31,59,90,120,151,181,212,243,273,304,334,365
830 GOSUB910
840 DATA"SUNDAY","MONDAY","TUESDAY","WEDNESDAY","THURSDAY",
    "FRIDAY","SATURDAY"
850 FORJ=0TO6:READ DAY$(J):NEXT
860 DATA"JAN","FEB","MAR","APR","MAY","JUN","JUL","AUG","SEP",
    "OCT","NOV","DEC"
870 FORJ=1TO12:READMO$(J):NEXT
895 RETURN
910 FOR J = 0 TO 13: READ DM(J):NEXT J
920 RETURN
1010 INPUTD$
1020 DD$=LEFT$(D$,2):MM$=MID$(D$,4,2):Y$=RIGHT$(D$,4)
1030 DD=VAL(DD$):MM=VAL(MM$):Y=VAL(Y$)
1050 IFY<1900ORY>4902THENPRINT"ILLEGAL YEAR":ONNGOTO1010,
     1010,1010,1620,1620
1070 IFR=1THENY1=Y:RETURN
1080 Y2=Y:RETURN
1110 F1=Y-(INT(Y/4)*4)
1120 F2=Y-(INT(Y/100)*100)
1130 F3=Y-(INT(Y/400)*400)
1135 IFF1<>0THENF1=0:GOTO1145
1140 F1=1
1145 IFF2=0THEN1155
1150 F2=1
1155 IFF3<>0THENF3=0:GOTO1170
1160 F3=0
1170 F1=F1ANDF2ORF3
1190 RETURN
1210 IFF1THENFORJ=3TO13:DM(J)=DM(J)+1:NEXT
1220 RETURN
1320 YD=(Y-1900)*365+INT((Y-1905)/4)
1340 MD=DM(MM)
1350 D=DD+MD+YD
1360 RETURN
1410 A=INT((Y-1)/100)
1420 B=Y-1-100*A
1430 D=799+B+INT(B/4)+INT(A/4)-2*A
1440 D=D-(INT(D/7)*7)
1450 MD=DM(MM)
1460 D=D+DD+MD
1470 D=D-(INT(D/7)*7)-1
1475 IFD<0THEND=D+7
1480 RETURN
1520 MD=DM(MM)
1530 D=DD+MD
```

Are you a Friday's child? What day will your birthday fall on in the year 2002? How many days have passed since you started that diet? To find out, you'll need this great program.

'Make A Date' lets you play around with dates in five different ways. You can enter two dates and the program tells you how many days there are between them. Or you can find out how many days are remaining in the year. Input any date to find out which day of the week it



ILLUSTRATION: ANDREW PAINTER

by Richard Hunt

ORE
ON

falls on, display the calendar of a selected month and print it out. Using something baffling called Zeller's Congruence, the program should work for any year between 1900 and 4902 — what more do you want?

The program is written in modular form with subroutines corresponding to the six choices displayed on the main menu. And remember, you must type in dates in the format indicated on the screen.




```
1540 DY=365-D
1550 IFF1THENDY=366-D
1560 RETURN
1600 PRINT"[CLS] ***MONTH CALENAR***"
1610 PRINTTAB(44)"ENTER MONTH AND YEAR[2SPC](MMM/YYYY)"
1620 INPUTD$: MM$=LEFT$(D$,3):Y$=RIGHT$(D$,4):Y=VAL(Y$)
1630 FORJ=1TO12:IF LEFT$(MM$,3)=MO$(J)THEN MM=J
1631 NEXTJ
1640 GOSUB1050
1690 RETURN
5000 FOR LOOP = 1 TO 2 STEP 0: REM BEGIN OUTER LOOP
5010 PRINT"[CLS][CD]*** HOW MANY DAYS? ***"
5015 RESTORE:GOSUB910
5020 PRINT"[2CD] DATE 1  (DD/MM/YYYY)":R=1:GOSUB1010:GOSUB1110:
     GOSUB1210:GOSUB1320
5030 D1=D
5035 RESTORE:GOSUB910
5040 PRINT"[2CD] DATE 2  (DD/MM/YYYY)":R=2:GOSUB1010:GOSUB1110:
     GOSUB1210:GOSUB1320
5050 D2=D
5060 D=D2-D1:PRINT"[2CD]NUMBER OF DAYS= [REV]";D
5070 PRINT"PLAY IT AGAIN, SAM?[3SPC](Y/N)";
5080 FOR K=1TO2 STEP 0:REM BEGIN INNER LOOP
5090 GETAN$:IFAN$="Y"ORAN$="N"THENK=2:REM FORCE END INNER LOOP
5100 NEXTK
5110 IFAN$<>"Y"THENLOOP=2: REM END OUTER LOOP & RETURN TO MENU
5120 NEXTLOOP:RETURN
6000 PRINT"[CLS]":PRINT" *** DAY OF WEEK *** ":PRINT:
     PRINT"ENTER DATE":PRINT" (DD/MM/YYYY)"
6005 RESTORE:GOSUB910
6010 GOSUB1010:GOSUB1110:GOSUB1210:GOSUB1410
6020 PRINT:PRINT"IT'S A ";DAY$(D)
7010 GOSUB1520
7030 PRINT:PRINT"THERE ARE "DY"[2SPC]DAYS LEFT IN "Y
7040 PRINT:PRINTD$" IS DAY"D: D=0
7050 GOSUB1410:GOSUB20000
7060 RETURN
8010 RESTORE:GOSUB815:GOSUB1600.
8050 GOSUB1110:GOSUB1210:GOSUB1410:GOSUB8160
8060 PRINT"[CLS] ***MONTH CALENDAR***"
8065 PRINT:PRINT"[4SPC]FOR "MO$(MM);CHR$(32);Y
8070 FORJ=0TO6:MATRIX$(J,0)=LEFT$(DAY$(J),3):NEXT :PRINT
8075 J=1
8080 K=1:FORL=0TO6
8085 J$=STR$(J):IFL<D+1THENJ$="[3G>SPC]":J=J-1
8090 MATRIX$(L,K)=CHR$(160)+CHR$(160)+J$:J=J+1
8095 NEXTL
8100 FORK=2TO6:FORL=0TO6
8105 J$=STR$(J)
8110 MATRIX$(L,K)=CHR$(160)+CHR$(160)+J$:J=J+1:IFJ>
     (DM(MM+1)-DM(MM))THENK=7:L=7
8112 NEXTL,K
8115 IFPTHEN RETURN
8120 FORL=0TO6:FORK=0TO6
8130 PRINTRIGHT$(MATRIX$(L,K),3);:IFPOS(X)>18THENPRINTCHR$(13)
8140 NEXTK,L
8150 GOSUB20000
8160 FORK=0TO6:FORL=0TO6:MATRIX$(K,L)="[3SPC]":NEXTL,K
8200 RETURN
9001 P=1:SP$="[2SPC]"
9020 GOSUB8010
9030 OPEN1,4,1
9040 PRINT£1,CHR$(14)CHR$(14)" CALENDAR"CHR$(13)"
9050 PRINT£1,CHR$(13)"[2SPC]FOR THE MONTH OF "MO$(MM);Y
     CHR$(13)CHR$(13)
9060 FORL=0TO6:FORK=0TO6
9070 PRINT£1,RIGHT$(MATRIX$(L,K),3)SP$  ;:IFK>5THENPRINT
     £1,CHR$(13)
9080 NEXTK,L
9100 P=0:CLOSE1:RETURN
10000 IF PEEK(44)=8THENSYS64738
10010 SYS64802
20000 PRINT"[HOM]":FORJ=0TO18:PRINT:NEXT:PRINT"PRESS
      [REV]SPACE[OFF] FOR MENU"
20010 FORJ=1TO2STEP0:GETAN$:IFAN$=CHR$(32)THENJ=2
20020 NEXT
20030 RETURN
```

VICTUALS

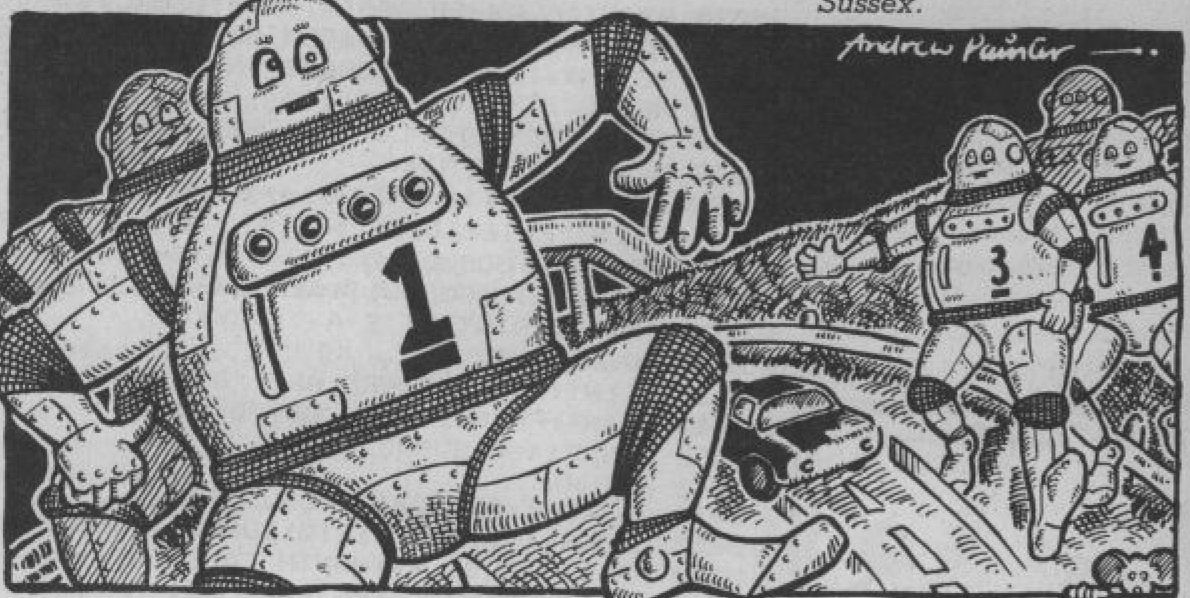
by Steve Elder

FREEWAY DODGER — FOR THE UNEXPANDED VIC-20

Warm up your joystick for a really fast and furious roadster game. Your task is to dodge the maniacal robots who've decided to invade all the lanes of the freeway. How far can you travel before one of them gets you? There's five levels of difficulty to choose from.

The game uses several simple programming techniques to gain speedier and smoother action. The greatest gain comes from placing the main loop at the beginning of the program. Initialisation, definition of variables and so on, is placed at the end and accessed by the GOTO at the beginning. Speed is also increased by replacing often-used numbers with variables, simply because the computer handles variables more quickly than it does numbers.

Reprinted from "Compute's Second Book of Vic Games" by permission of Compute! Publications. The book costs £10.95 and is available from Holt Saunders, 1 St Annes Road, Eastbourne, East Sussex.




```
1 GOTO500
20 S=S+5:IFS>200THENS=200
22 POKEV-4,S:GOTO100
100 IF(PEEK(J)AND16)=0THEND=-2
102 IF(PEEK(J+O)AND128)=0THEND=2
104 IFPEEK(P+D+T)<>BTHEN202
106 POKEP,B:P=P+D:PRINT"[REV][4CR][YEL][2G>-][CR]:[CR]:[CR]:[CR]:[CR][2G>-]":POK
EP,0:POKEP+C,10:D=0
108 Q=Q+O:IFRND(O)>O-Q/SKTHENX=INT(RND(O)*9+8126):POKEX,O:POKEX+C,10
110 IF(Q+15)/100=INT((Q+15)/100)THENPRINT"[CU][REV][CYN]"Q+15:GOTO20
200 GOTO100
202 IFPEEK(P+D+T)>OTHEND=0:GOTO104
204 POKEP,B:P=P+D:PRINT:POKEV-4,0
206 POKEP,255:POKEP-23,255:POKEP-T,255:POKEP-21,255:POKEP-O,255:POKEP+O,255
208 POKEP+21,255:POKEP+T,255:POKEP+23,255
210 POKEV-O,200:FORX=15TO0STEP-.2:POKEV,XOR112:POKE36865,RND(O)*10+20:NEXT
212 POKEV-O,0:POKE36865,25:PRINT"[HOM][REV][CYN][6CR]SCORE:"Q
214 IFQ>HSTHENHS=Q
216 PRINT"[REV][3CR]HI-SCORE:"HS
218 PRINT"[19CD][REV][2CR]PRESS FIRE BUTTON"
300 IF(PEEK(J)ANDB)THEN300
302 PRINT"[CLS]":FORX=1TO500:NEXT:D=0:Q=0:GOTO520
500 POKE36879,11
502 PRINT"[CLS][WHT][4CD][3CR]FREEWAY ZAPPER![5CD]"
504 PRINT"[CYN]STEER LEFT AND RIGHT[3SPC]WITHTHE JOYSTICK."
506 PRINT"[YEL][2CD][2SPC]CHOOSE SKILL LEVEL[3SPC][CD]1-HARDEST[2SPC]5-EASIEST"
508 GETA$:IFA$=""THEN508
510 X=ASC(A$)-48:IFX<1ORX>5THEN508
512 POKE7679,X:PRINT"[CLS]":POKE52,28:POKE56,28:POKE51,0:CLR
514 FORX=0TO15:READY:POKEX+7168,Y:NEXT
516 FORX=7424TO7431:POKEX,0:NEXT
518 DATA40,105,125,60,40,105,105,40,60,60,170,40,40,20,65,65
520 V=36878:C=30720:J=37151:P=7800:B=32:S=130:SK=100+200*PEEK(7679):O=1:T=22
522 POKEV,127:POKEV-9,255:POKEJ+3,127:POKEV-4,S
524 FORX=0TO21:PRINT"[REV][4CR][YEL][2G>-][CR]:[CR]:[CR]:[CR]:[CR][2G>-]":NEXT
600 GOTO100
```

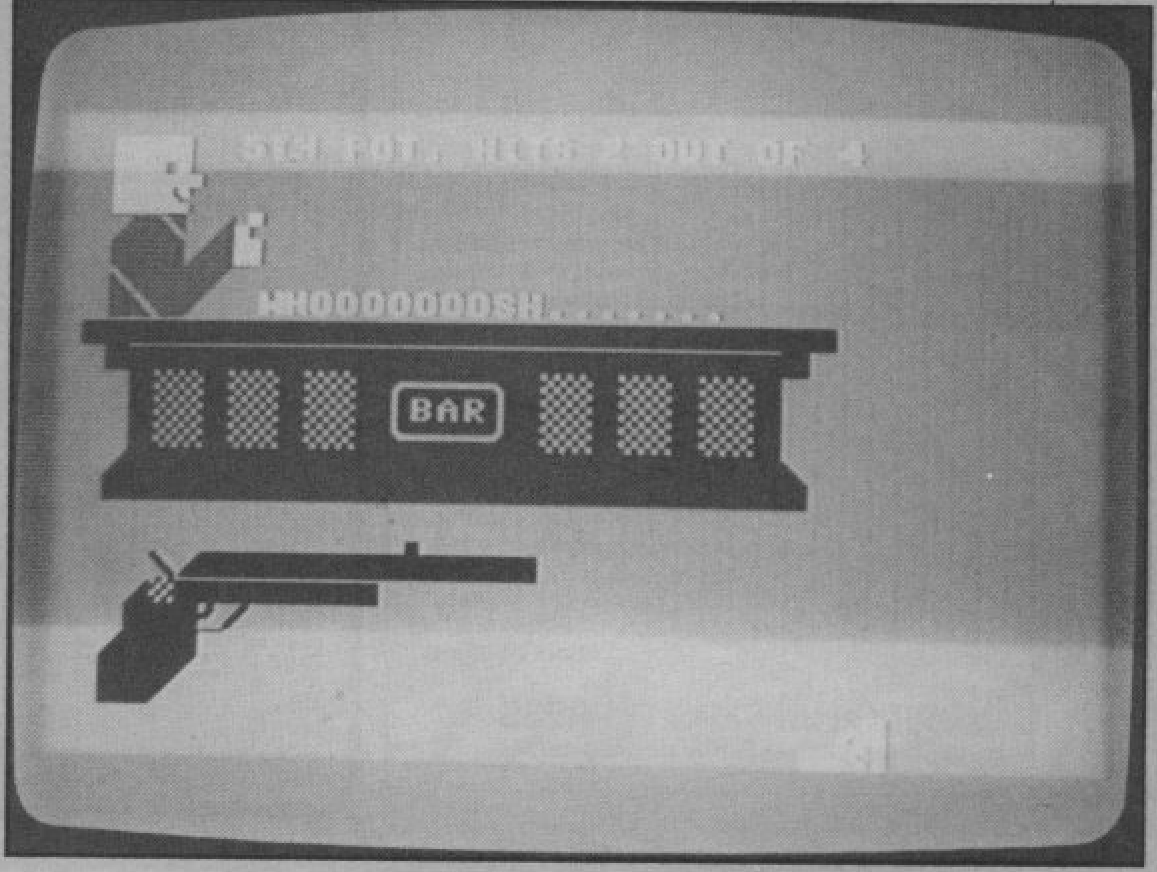
ILLUSTRATION: ANDREW PAINTER

VICTUALS

GUN FUN — FOR THE C-16 AND PLUS/4

It's no fun down at the Brushwood Gulch saloon any more. Every time the barman serves up a drink, some trigger-happy redneck tries to blast it with his six-shooter as it falls off the end of the bar. Still, the drinks keep rolling on, six in all.

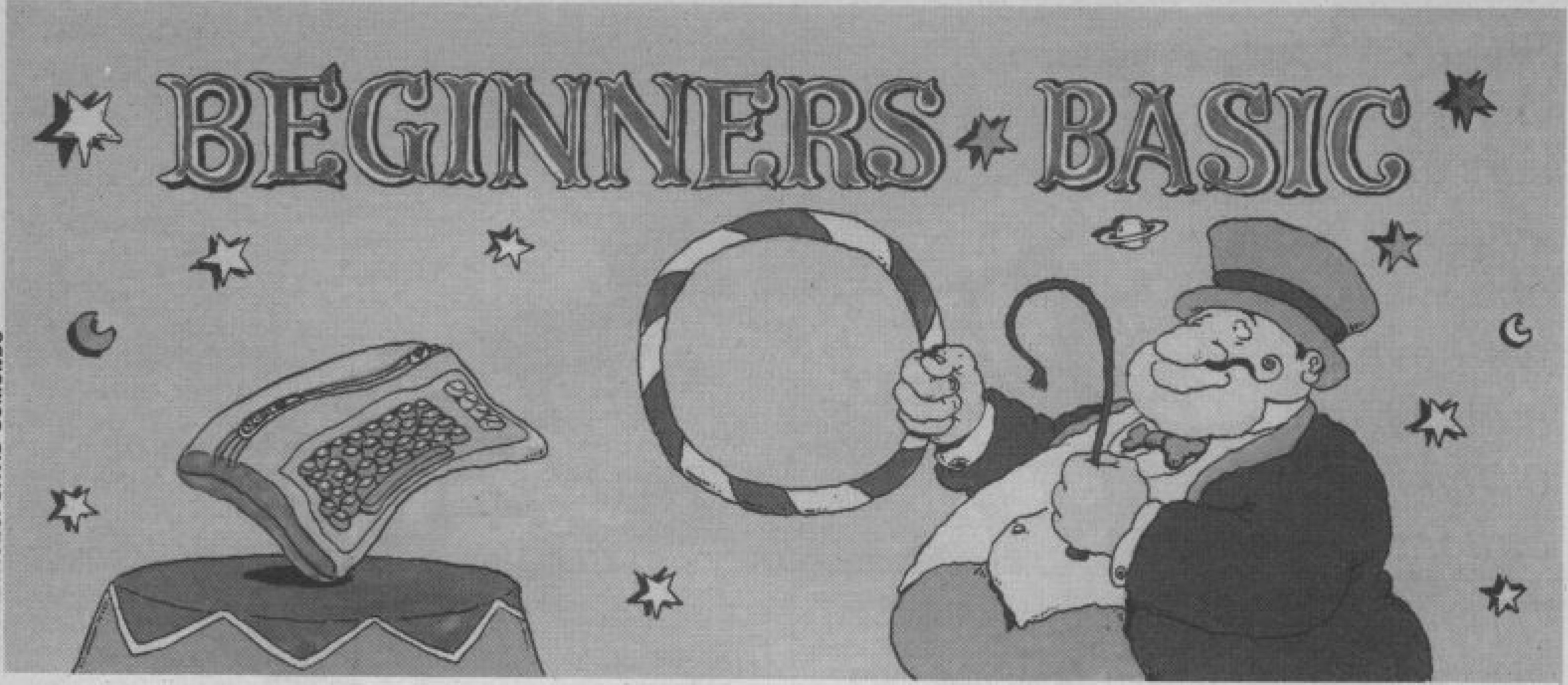
If all six get smashed, the barman starts serving again, this time varying the speed with which he slides the drink across the bar. It all gets progressively harder until you miss a shot — time to change your local. No need to squeeze the trigger, just hit the spacebar when you want to fire.




```
0 REM ****POT SHOT        16,+4****
1 REM *BY COLIN LENNOX, JAN 1985 *
2 WW=1343:B=3072:C=1:N=1:TT=0:DIMM(29),S
(12)
3 COLOR0,2,4:COLOR4,16,4
7 FORI=1TO12:READS(I):NEXT
8 FORI=1TO29:READM(I):NEXT
9 R=INT(RND(0)*N)+22
10 PRINT""
50 PRINT"       "
52 PRINT"       "
54 PRINT"       "
60 PRINT"       "
62 PRINT"       "
64 PRINT"       "
66 PRINT"       "
100 PRINT"    "
110 PRINT"    "
130 PRINT"    "
160 PRINT"             |BAR|   "
170 PRINT"    "
180 PRINT"    "
190 PRINT"    "
200 PRINT"    "
210 PRINT"    "
230 PRINT"    "
240 PRINT"    "
250 PRINT"    /"
260 PRINT"    "
270 PRINT"    "
275 PRINT"    "
280 PRINT"    "
281 PRINT"    "
283 PRINT"    "
284 IFTT=0THENPRINT"    PRESS ANY KEY TO";
285 PRINT" SERVE":GOTO0287
287 GETA$:IFA$=""THEN287
288 POKEWW,0
290 PRINT"    "
292 IFC=1THENPRINT" 1ST";:GOTO296
293 IFC=2THENPRINT" 2ND";:GOTO296
294 IFC=3THENPRINT" 3RD";:GOTO296
295 PRINTC"TH";
296 PRINT" POT, HITS"SC"OUT OF"C-1
304 REM LEFTPOT
305 PRINT"    "
310 PRINT"    "
320 PRINT"    "
330 PRINT"    "
340 PRINT"    "
400 P=B+(40*6)+8
405 PRINT""
410 FORI=1TOR
420 P=P+1
430 GOSUB5430
```

by Colin Lennox

```
450 POKEQ(1)-1,32:POKEQ(3)-1,M(I)
460 NEXT
470 POKEWW,1:K=0
500 REM POT SHOT
510 IFP>B+(23*40)THEN4000
515 IFK=1THEN540
520 GETA$:IFA$=" "THENK=1:G=B+(17*40)+19
:POKEWW,0:VOL8:SOUND3,1000,4
540 P=P+40
550 GOSUB 5430
555 POKEQ(1)-40,32:POKEQ(2)-40,32
560 IFK<>1THEN570
561 Y=0
562 POKEG,32:G=G+1:IFPEEK(G)<>32THEN3000
563 POKEG,67
565 IFG=B+(18*40)-1THENK=0:POKEG,32
567 Y=Y+1:IFY<2THEN562
570 GOTO510
995 DATA227,247,247,248,248,248,98,98,12
1,121,100,100
998 END
999 DATA23,8,15,15,15,15,15,15,15,19,8,4
6 46 46,46,46,46,32,32,32,32,32,32,32
1000 DATA32,32,32,32
2999 REM HIT ROUTINE
3000 POKEWW,1:SC=SC+1:TT=TT+1:SOUND1,500
,25
3999 REM SPILL ROUTINE
4000 SOUND1,500,25
4001 P=P+41:POKEP,243:FORI=1TO12:FORU=1T
O200:NEXT:POKEP-1,S(I):NEXT
4005 POKEWW,1
4010 FORI=1TO200:NEXT
4015 G=B+(17*40)+19
4020 C=C+1:IFC<7THEN9
4029 PRINT"
      "
4030 PRINT"YOU SCORED"SC;"OUT
 OF"C-1"
4031 PRINT"THAT'S A TOTAL OF"TT
4032 POKEWW,1
4033 IFSC<>6THEN4090
4035 PRINT"MORE DRINKS CO
MMIN' UP,"
4036 PRINT"SHARP SHOOTER!
"
4037 IFN=1THENN=N+1:GOTO4041
4040 IFN<8THENN=N+2
4041 I=0
4042 I=I+1
4043 GET A$:IFA$<>""THENI=0:GOTO4045
4044 IFI<500THEN4042
4045 SC=0:C=1
4050 GOTO9
4090 PRINT"GAME OVER."
4091 I=0
4092 I=I+1
4093 GET A$:IFA$<>""THENI=0:GOTO4100
4095 IFI<500THEN4092
4100 N=1:SC=0:C=1:TT=0:GOTO5
5430 Q(1)=P:Q(2)=P+1:Q(3)=P+40:Q(4)=P+41
5440 POKEQ(1),85:POKEQ(2),160:POKEQ(3),7
4:POKEQ(4),160
5500 RETURN
```



ILLUSTRATIONS: DAVID SUMONDS

Part 3 — how to use logical expressions

by Brian Grainger

Now that you've all mastered loops and variables, it's time to look at ways in which you can get your programs to make decisions and act upon them . . .

How did you get on with the coin flipping problem we set last time? I bet you found it easy if you followed the suggested steps I gave you. By the way, it's very useful to map out roughly what you're going to do before programming at your computer. Here's my solution:

```
10 INPUT" [CLS] HOW
   MANY TIMES TO FLIP THE
   COIN";NF
20 DIM A(2)
30 FOR I=1 TO NF
40 0=1+INT (RND
   (1)*(2-1+1) )
50 A(0)=A(0)+1
60 NEXT I
70 PRINT"[CD]THE NUMBER
   OF HEADS IS";A(1)
80 PRINT"[CD]THE NUMBER
   OF TAILS IS";A(2)
90 PRINT"[CD]";INT (A(0)*
   100/NF ); "PER CENT
   OF FLIPS WERE HEADS"
```

You may have coded some things differently, but did you have a line similar to line 90? This helps to show that as the number of flips gets large, the number of heads get closer to the number of tails, 50 per cent of the total. Now let's get on with the course.

Expressions

Last time I introduced the different types of variables: integer, floating point and string variables. In the example programs we combined them to give new values. A combination of variables which result in a new value being formed is called an EXPRESSION. As with variables, expressions can come in different types.

We have *arithmetic expressions* which, not surprisingly, consist of numbers combined with ARITHMETIC OPERATORS. The arithmetic operators are plus (+), subtract (−), multiply (★), divide (/), negate (—) and exponentation (↑). Don't worry too much about the last two; exponentiation is rarely used an you can look on the negate operator as a subtraction of a single value from 0.

> *'combine either numbers or strings'*

We have *string expressions* which combine string variables or string functions with the string operator concatenation (+). This is a fancy term for tacking one string value on the end of another one to form one big string.

Finally we have *logical expressions*, which are rather special. They only have two values, TRUE or FALSE, which in Commodore Basic have a value of −1 and 0 respectively. Logical expressions can combine either numbers *or* strings but *not both together*. The logical (or relational) operators which combine the values together are equality '=', inequality '<>', less than '<', greater than '>', less than or equal to '<=' and greater than or equal to '>='. These are complicated but very important, so let's look at some examples.



Example expressions

A=B can be a logical expression. It does not mean set A to the value of B. It means if A = B the value of the expression is *true*, otherwise it is *false*.

A$<>B$ is a string expression which will only be *false* if both A$ and B$ are identical. Otherwise it is *true*.

Logical expressions are mainly used after the IF command. For example, **10 A=B=C** is a perfectly valid line of program but do you know what it does? Try it out with various values of B and C and show it does *not* mean set A and B to the value of C. I shall never use logical expressions other then in IF statements.

Decisions, decisions

So why have I suddenly started talking about expressions? Well, they're vital to the second way in which a program can jump out of sequence. Last time we met loops, the first way. We can also jump out of sequence by making a *decision*; by asking a question and jumping to another part of the program depending on the answer to the question.

The simplest form of decision is one in which if a statement is TRUE then we will execute some statement otherwise we will ignore it and carry on — that's an IF . . . THEN statement. Here's an example.

Suppose we have a list of our record collection stored in a string array. The first 30 characters of each string array variable hold a record title and the last 20 characters the name of the artist. Suppose we want to find out if we've got any Culture Club records and print out what they are. Consider the follow- ▶

'the most complicated sort of decision is one where we have a number of different options'



ing little program:

```
10 DIM A$ (50)
20 N=3
30 FOR I=1 TO N
40 READ A$(I)
50 NEXT I
60 DATA "MAKE IT BIG [19SPC] WHAM! [15SPC]"
70 DATA "COLOUR BY NUMBERS [13SPC]CULTURE CLUB [8SPC]"
80 DATA "ALF [27SPC] ALISON MOYET [8]"
600 FOR I=1 TO N
610 IF RIGHT$ (A$(I),20) = "CULTURE CLUB [8SPC]" THEN PRINT A$(I)
820 NEXT I
```

Let's start with **lines 600-620**. For each array variable line 610 is saying if the 20 rightmost characters of the variables are identical to CULTURE CLUB[8SPC], (the expression is TRUE), then print all the characters. Otherwise do not print anything. Whatever the value of the next **line 620** is always executed. We can see that the command to print is only carried out if a particular statement is TRUE, a simple decision.

RIGHT, LEFT and MID

We introduced some new words in that little program. **RIGHT$(A$,N)** is a string function which has a resulting value of the rightmost **N** characters of the string **A$**. We can, of course, replace the A$ and N with any variable name or constant. Similarly, **LEFT$(A$,N)** takes the leftmost **N** characters of **A$** starting from the one at position **M**.

Using these three string functions we can extract any part of a big string and therefore split any big string up into pieces — the opposite of concatenation.

READ your data

Now let's look at the lines at the start of the program. This is another way of setting variables to values. It doesn't use the assignment (=) or INPUT statement but uses READ. What READ does is to take the value from the next DATA statement. The DATA statements can appear anywhere in the program. The first READ will take the first DATA statement value. The second READ the second DATA statement and so on. Each DATA statement consists of one value, as in the program above, or a number of values separated by commas.

IF . . . THEN . . . ELSE

Suppose we have a situation where we are inputting numbers and we wish to print whether the numbers are odd and even. This time we have a situation where we wish to do one thing if a statement is *true*, but if it is *false* we do not wish simply to ignore the statement but do *something else*. Here's one of two ways (the second is a bit complicated for beginners) of going about it:

```
10 INPUT N
20 IF INT(N/2)*2=N THEN PRINT N; "IS EVEN : GOTO 40
30 PRINT N; "IS ODD"
40 END
```

IF . . THEN . . . ELSE IF . . ELSE

The most complicated sort of decision is one where we have a number of different options and for each one carry out a different set of statements. The example above had only two options. What would we do if we had three? Suppose we want to print an appropriate message depending on whether an input number is negative, zero or positive. Well, we'd use more than one IF statement in combination. Here is the simple way of doing things:

```
10 INPUT N
20 IF N<0 THEN PRINT N; "IS A NEGATIVE NUMBER" : GOTO 50
30 IF N=0 THEN PRINT N; "IS ZERO" : GOTO 50
40 PRINT N; "IS A POSITIVE NUMBER"
50 END
```

In situations with more options to consider we would just add more IF statements. Problems can occur if the number of statements to perform for a particular option is larger than can be written in 80 characters, but that's beyond the scope of this series.

ON . . . GOTO

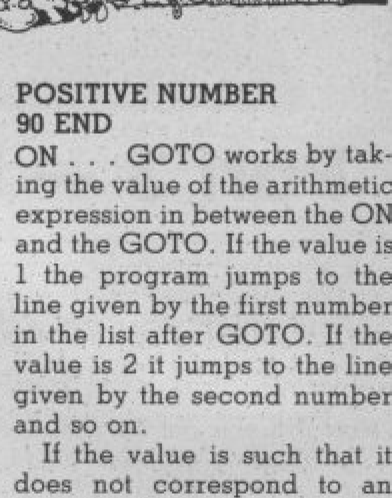
There is one special case of a multiple option decision that Basic will cope with by a specific statement, ON GOTO. If the options are dependent on whether an arithmetic expression has the values 1,2,3 and so on we can make use of this new statement.

In Basic there is a function, **SGN(X)**, which will result in a value of **−1** if **X<0**. If **X** is **0**, **SGN(X)** will give **0** and if X>0 then **SGN(X)** will be **1**. For example:

```
10 INPUT N
20 ON SGN (N)+2 GOTO 40,60,80
30 GOTO 90 : REM THE PROGRAM WILL NEVER GET TO THIS STEP
40 PRINT N; "IS A NEGATIVE NUMBER"
50 GOTO 90
60 PRINT N; "IS ZERO"
70 GOTO 90
80 PRINT N; "IS A POSITIVE NUMBER
90 END
```

ON . . . GOTO works by taking the value of the arithmetic expression in between the ON and the GOTO. If the value is 1 the program jumps to the line given by the first number in the list after GOTO. If the value is 2 it jumps to the line given by the second number and so on.

If the value is such that it does not correspond to an item in the list, such as a negative number, 0, or a number greater than 3 in the example above, then the program will continue with the next statement. That's why in the above example line 30 will never be reached. All values of N will make SGN(N)+2 either 1, 2, or 3.



Play time

That's covered every type of decision structure. Let's now combine that with our loop structures of last time to produce a game. The idea is to guess the value of a computer generated random integer in as few goes as possible. After each guess the computer will tell you if your guess is too high or too low. Here goes then. (Can you work out what's happening?)

Hi-Lo Game

```
10 PRINT"[CLS][14SPC]HI-LO GAME"
20 PRINT"[CD] IN EACH GAME I WILL PICK A NUMBER FROM"
30 PRINT"[CD]1-100. YOU MAKE GUESSES AT THE NUMBER"
40 PRINT"[CD] AND I WILL TELL YOU IF IT IS HIGHER OR"
50 PRINT "[CD] LOWER THAN MY NUMBER AFTER EACH
GUESS."
60 PRINT"[CD]WHEN YOU HAVE GUESSED THE NUMBER THE"
70 PRINT"[CD]GAME IS FINISHED. AFTER 5 GAMES I WILL"
80 PRINT"[2CD]TELL YOU HOW GOOD YOU ARE."
90 PRINT"[2CD]PRESS A KEY WHEN YOU ARE READY"
100 GET A$
110 IF A$=" " THEN 100
120 L6=0 : M7=0
130 FOR GA=1 TO 5
135 PRINT "[CLS]THIS IS GAME NO. ";GA;". I WILL PICK A NO."
140 N=1+INT(RND(1)*100)
150 NG=0
170 INPUT"[CD]WHAT IS YOUR GUESS"; GU
180 NG=NG+1
190 IF GU<N THEN PRINT"[CD]YOUR GUESS IS TOO LOW. TRY
AGAIN." : GOTO 227
200 IF GU>N THEN PRINT"[CD]YOUR GUESS IS TOO HIGH. TRY
AGAIN." GOTO 227
220 PRINT "[CD]BINGO! YOU HAVE GOT IT."
225 FOR I=1 TO 500 : NEXT I
227 IF GU<>N THEN 170
230 IF NG<6 THEN L6=L6+1 : GOTO 245
240 IF NG>7 THEN M7=M7+1
245 NEXT GA
250 W=M7-L6+6
260 ON W GOTO 270, 270, 280, 280, 290, 290, 290, 300, 300, 310,
310
270 PRINT"[CD]YOU'RE TOO GOOD AT THIS" : GOTO 320
280 PRINT"[CD]YOU'RE PRETTY HOT AT THIS" : GOTO 320
290 PRINT"[CD]YOU ARE ABOUT AVERAGE AT THIS GAME" :
GOTO 320
300 PRINT"[CD]YOU COULD DO BETTER AT THIS GAME" :
GOTO 320
310 PRINT "[CD]I'D TRY A GAME OF SOMETHING ELSE IF
I[3SPC] WERE YOU"
320 END
```



Do it yourself

This month's brain-teaser is going to be a little tricky. Write a program which will set up a fictitious starting bank balance. Then allow the user three options.

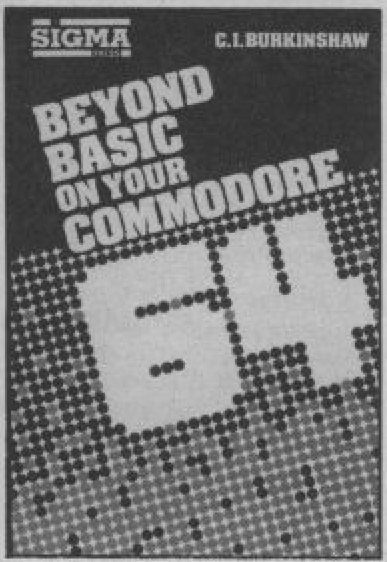
One option is to input (a) a transaction description (e.g. standing order, cheque, monthly salary), (b) a cash value of the transaction and (c) whether a debit or a credit.

The second option is to have a display of initial balance plus transactions to date plus final balance.

And thirdly, to allow the user to remove all the transaction descriptons and reset the starting balance to account for the removal.

This little test could be the start of a home finance package so while the homework is tricky you could find it very beneficial later on! See you next month.

BOOKS



Beyond Basic?

Many Commodore 64 owners will eventually want to sample the delights of machine-code, and will approach the shelves of their local bookshop for succour. **Beyond Basic On Your 64** claims to be the book for the job. The rather slim volume of 144 pages on such a large subject immediately gave me cause for concern. My apprehension increased when 70 of the pages were devoted to a rather incomplete list of the 6502 instruction set, and 9 appendices of dubious merit.

The first chapter starts with general memory structure, RAM, ROM, pages etc. The author recommends that the reader visualises memory as an array of pigeon holes, a typical analogy, but no diagram is provided. In fact there are very few diagrams throughout, and a picture can paint a thousand ASCII characters.

Logical operators are introduced but the examples are vague, and the usual truth tables for AND, OR, EOR are noticeably absent. Some other processor commands are briefly covered in chapter 3, unceremoniously followed by the previously mentioned instruction set. The list contains references to addressing modes which have yet to be covered, and gives no indication of cycle times or out of page effects.

A very short program includes some of the commands already covered. It is listed in HEX with the appropriate mnemonic alongside, together with some comments. The author suggests that is POKED into memory, unfortunately without any clear explanation of how to do it.

Addressing techniques are briefly mentioned but with the use of trivial examples. The sections on Binary Coded Decimal and floating point manipulation are glossed over.

Interrupts tantalisingly promise uses for the function keys, but the reader is only frustrated by incomplete information. Several substantial assembler listings attempt to help explain split screen and scrolling effects, but it is unlikely that the beginner will be able to incorporate the principles into his own programs.

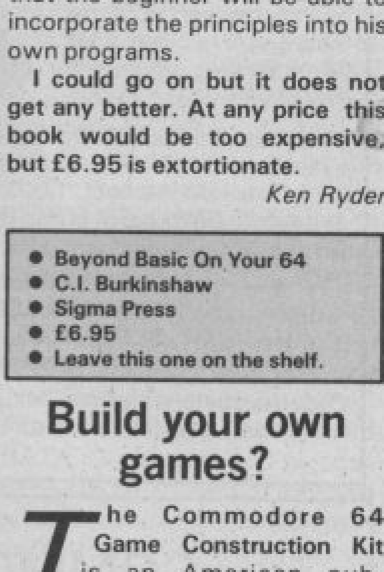
I could go on but it does not get any better. At any price this book would be too expensive, but £6.95 is extortionate.

Ken Ryder

- **Beyond Basic On Your 64**
- **C.I. Burkinshaw**
- **Sigma Press**
- **£6.95**
- **Leave this one on the shelf.**

Build your own games?

The **Commodore 64 Game Construction Kit** is an American publication consisting of approximately 450 pages. The introduction admits that *Pac Man* and *Asteroid* type programs are beyond the scope of the book as they are written in machine code, and the book is devoted to Basic. That's a good start.



Detailed Planning of games is encouraged before touching the computer. Variable types and naming conventions are discussed, and integer variables, which are said to occupy less memory and allow greater speed of execution. Eh? Integer variables only occupy less space when stored in arrays, and they offer no increase in speed. This type of fundamental misconception does not inspire confidence.

General Basic commands are briefly covered, and structured programming is hinted at, but not emphasised. The text is interspersed with numerous programs of various lengths and dubious merit.

Character based graphics show what can be achieved with standard keyboard graphics, but custom characters do not include extended or multicolour mode, although a character editor program is provided.

Memory configuration is incomplete but a useful boot program is provided to move the start of Basic up, and then load the main program. The area below Basic can then be used for screen, character or sprite data.

But, Sprites are not clearly explained, especially multicolour sprites which are not mentioned at all. High resolution graphics is mentioned in passing, and the few pages on sound are pitiful.

From a 'games kit' I would expect useful subroutines, which could be strung together to help develop your own programs. Instead you get some poorly written programs, which are not very well explained.

This is yet another guide to Basic with an emphasis on games, and some listings thrown in to pad it out and help justify the scandalous price of £14.50.

Ken Ryder

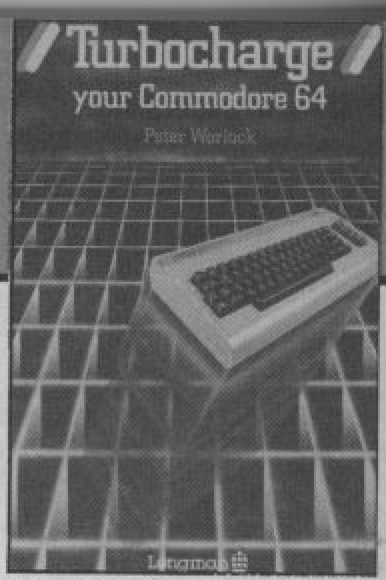
- **Commodore 64 Games Construction Kit**
- **L. Rupp P.A. Hartman**
- **Datamost**
- **Not recommended**
- **£14.50**

Turbo but not Turbo

Longman have introduced a series of four books on the Commodore 64, all having the same format and price. Each one deals with a particular facet of the computer.

Turbocharge Your Commodore 64 contains 160 pages, each page is divided into two columns of text interspersed with diagrams and program listings. Unfortunately this format forces most program lines to wraparound which makes program development more difficult to follow. Each chapter finishes with several practical exercises.

The somewhat sensational title gives the impression that the book will enlightend the reader on the subject of Turbo loaders.



This is not the case, the book is yet another guide to Commodore Basic, together with some techniques which help to speed up Basic programs.

The first part offers sound advice about planning your programs away from the computer, using structured techniques. The disadvantages of GOTO, and the advantages of GOSUB are discussed together with the merits of ON GOSUB over numerous IF THEN statements.

The various functions such as RND, SGN etc. are covered, and there's some good advice about storing exponents in look-up tables to increase processing speed. Interactive programming includes a detailed description of keyboard data entry, and a machine code routine to enable PRINTing AT any row or column.

Data entry leads onto information handling and arrays, although mutli-dimensional arrays are not very well explained. The majority of the rest of the book is devoted to graphics, with only one chapter each on sound and interfacing.

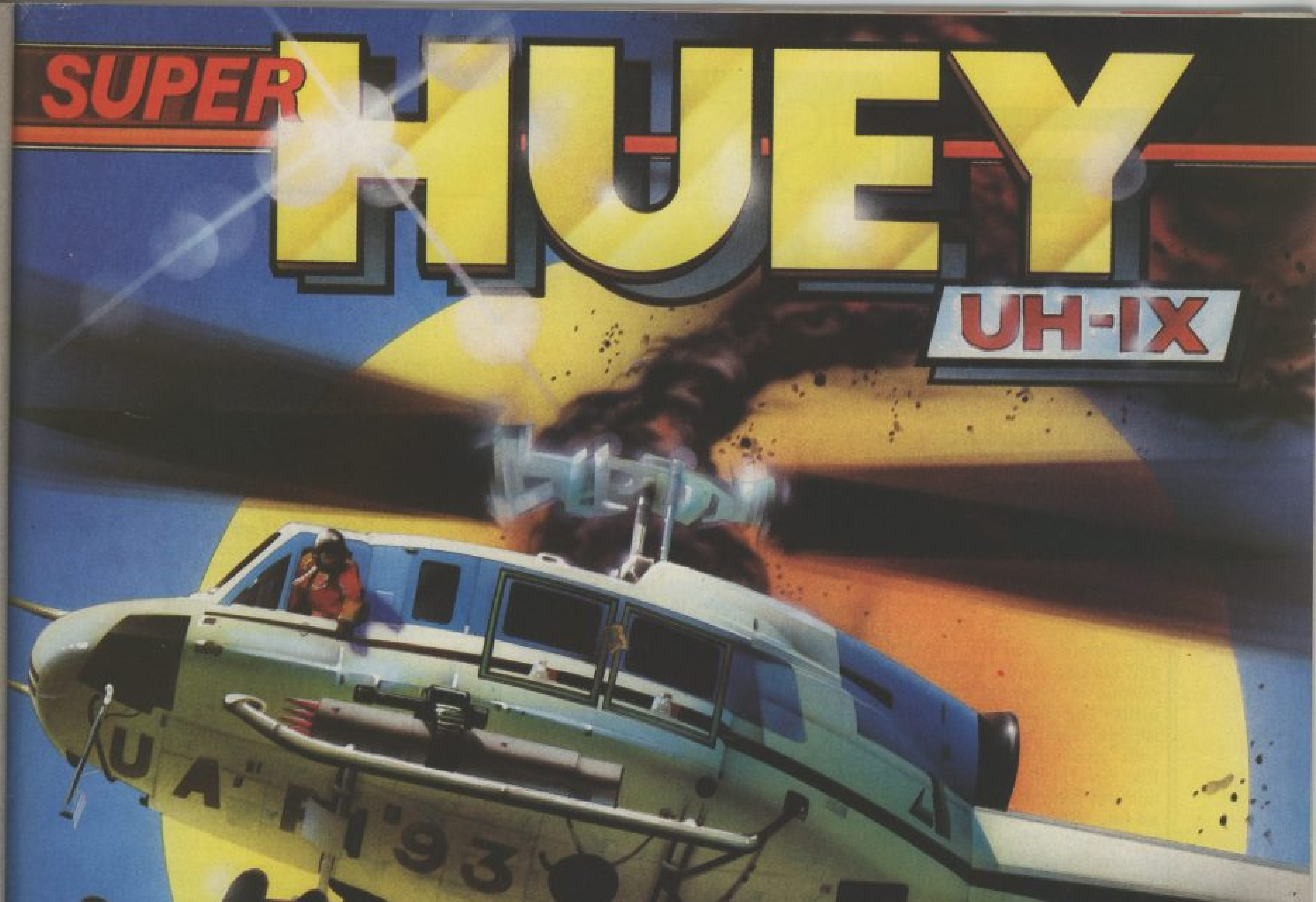
Boolean operators (AND/OR) are explained logically (groan!), and are the key to the 64's sound and high resolution graphics. The concept of bank switching is only briefly covered. Multicolour and extended character mode are fully explained but multicolour bit map mode is glossed over.

The chapter on sprites is comprehensive and includes the oft forgotten subject of collisions. The sections on Sound and Interfacing are short and not very exciting.

On the whole the book is well written and informative and should help you write better, faster programs. However, like so many books on the 64, it is just averge, and hardly warrants the £5.95 price tag. It is not a book for the faint hearted, the exercises must be worked at to gain full benefit from it.

Ken Ryder

- **Turbocharge Your Commodore 64**
- **Peter Worlock**
- **Longman Computer Books**
- **£5.95**
- **Average, some good tips.**



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ATARI

BUSINESS

64 In the Pet Shop

A pet shop is not the kind of place you'd expect to find a Commodore 64. Or maybe it is? The 64 has, not unexpectedly, gained itself a reputation for being useful to just about any small business. After all, nearly all of them need to keep records, manage accounts and keep track of stock. Valerie Buckle went to see the owners of Barking Pets in Essex, to find out how the 64 is changing their business.

by Valerie Buckle

Barking Pets of Barking, Essex; what a name. Even that can't prepare you for the cacophony of sqawks, shrieks and the odd "Hello Boy" from dozens of brightly coloured birds. The inside of the shop is packed from floor to ceiling with more different species than you or I could imagine and pet paraphenalia is stuffed into every remaining nook or cranny. This weird and wonderful place is owned by Tim and Isabel Standbridge.

In the four years since the shop first opened selling plants and domestic pets, Tim and Isabel have seen their stock mushroom in size and complexity. They now sell to a wide range of customers: from the small boy who wants a hamster to the dedicated snake or parrot enthusiast. Naturally, the business side of the shop has developed and consequently a more sophisticated method of book-keeping and stock management has become essential, just the job for a computer.

So I asked Tim if either of them had any computing experience. "Both of us were really in the dark as far as computers are concerned. We decided that there must be an easier way of keeping track of the business side of the shop and a personal computer backed up by a good business package seemed a good idea".

Previously, Isabel had done the book-keeping by hand, a time-consuming job fraught with problems such as trying to track down a single mistake somewhere in the month's accounts. "I would leave them as long as possible and then have to work every evening for a week just to catch up. It really was the worst aspect of running the shop". So the prospect of computerization seemed an answer to their prayers. But they soon found out that it wasn't as simple as they thought.

First steps to technology

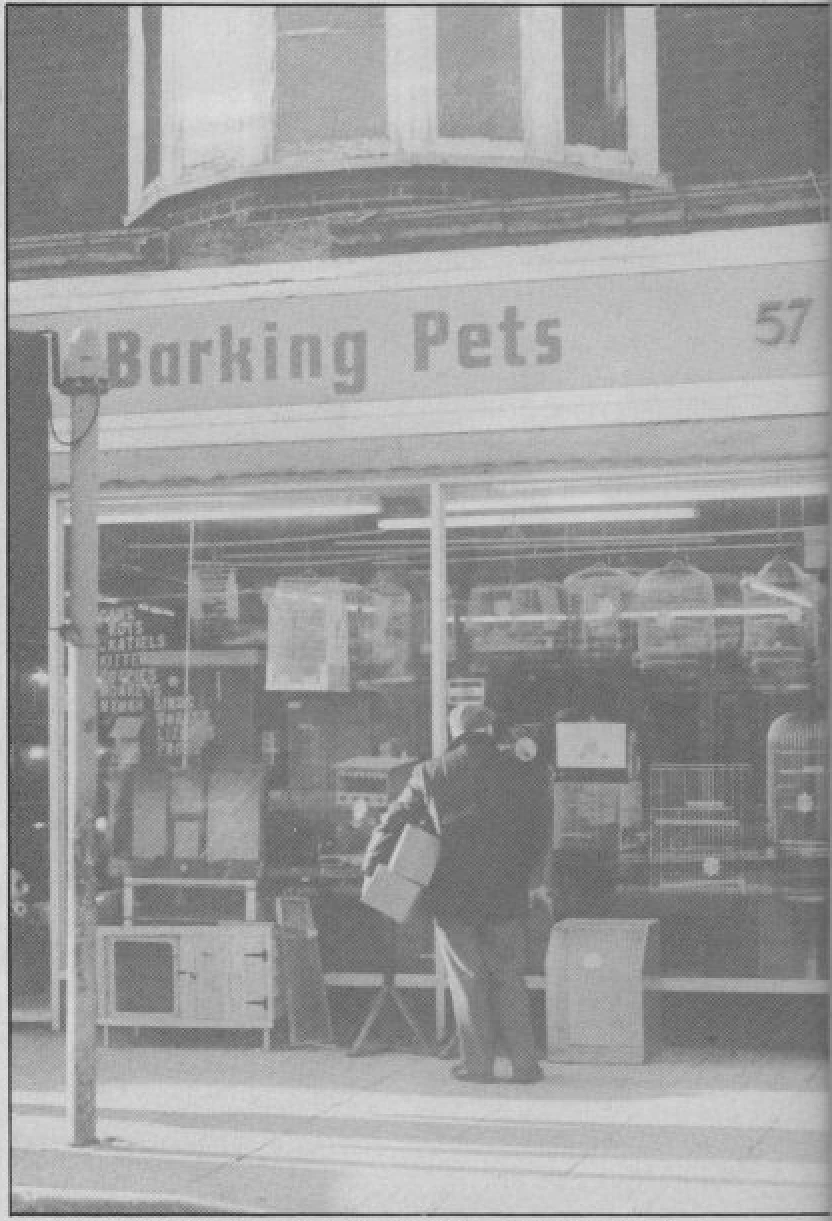
The choice of computer was relatively easy. "We don't have unlimited funds so we were looking for a computer at the lower end of the market. I had spoken to several people who owned a Spectrum, Dragon or a ZX81 and, in general, they were not pleased with the facilities available. We wanted a machine for which the appropriate software was already available and one which appeared to have a good reputation. On the advice of some friends we decided on the Commodore 64 and 1541 disk drive."

The 64 didn't immediately transform their lives. Lack of information meant that they were ill-prepared for the time and expense necessary to put together a working system. Where they really regretted their lack of knowledge was when trying to choose a printer, interface and software.

Software needs

Although they both knew roughly what they were looking for in a software package, they found it rather difficult to decide which of the packages available were best suited to their needs.

Tim had decided that he needed a simple cashbook capable of handling all the day to day entries of cash flow, end of year accounts and VAT statements. Sounds simple enough but he found that software companies were more interested in selling than advising on their particular need.



You wouldn't expect to find a Commodore 64 amongst the monkeys and the mynah birds — or would you?

The most valuable source of information was undoubtedly the computer press which tends to give impartial judgements on each package and they found that a package by **Gemini** provided the best value for money for the facilities that they required.

A brief look at the Gemini package revealed that it would perform most of the tasks which plague any small business. A hard-copy print out before shutdown is assumed and a "configure" option allows you to set the program up to most printers.

Printing it out

Choosing a printer for a Commodore 64 is not an easy task even for the experienced computer user, and Tim and



"I thought all I'd have to do is buy the lot and it would work out, and I wasn't prepared for all this messing around".

Isabel found that this is where they were completely at the mercy of the salespeople.

Their main concerns were price (less than £200) and speed. But Tim admits that they did not go into this complicated subject deeply enough. "We bought a NEC mainly because the price was right and never thought for a minute that we would have problems with interfaces and software. In fact, prior to buying the printer I didn't even know what an interface was or that it had to be compatible with not only the printer and computer but also the software."

Tim was understandably cross when he found that the Stack interface they bought would not run their Gemini software. Having spent a good few hours trying to drive the program, they found the interface software on a cassette at the bottom of the box. To add insult to injury, the thing still didn't work.

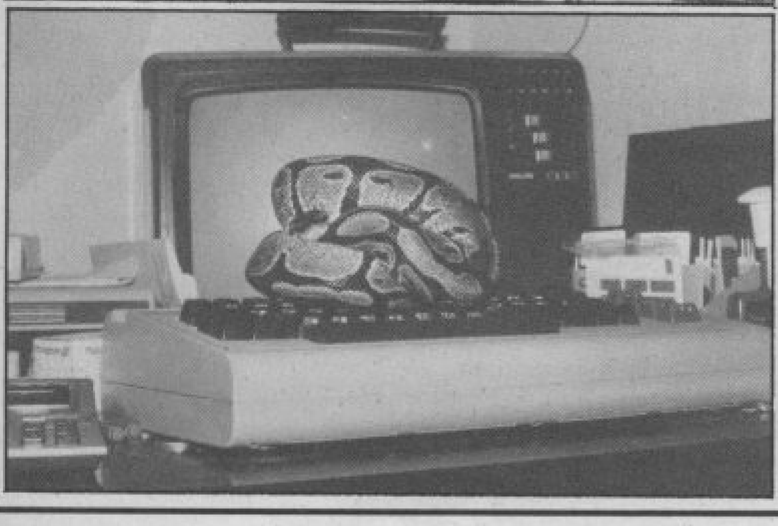
Interface problems

"The Stack interface requires a software driver in memory and there is no room left by the Gemini program for this. By this time, I was really fed up. I had thought that all I'd have to do is buy the lot and it would work and I wasn't prepared for all this messing around."

Tim sent the Stack interface back and started to phone around for some advice. "Commodore was of no use whatsoever, they did not know which interface to buy for the NEC to use the software. NEC was no help either, although you would expect that someone would've had some idea as the 64 is one of the best-selling micros. I found a dealer who stocked a wide range of soft and hardware who assured me that an **Impex** interface would work and I bought this one on his recommendation." Luckily, they made the right choice this time and apart from a few minor modifications, they have had no further problems.

Below: "The Commodore 64 is, without doubt, the best micro that we could have bought".





Having set up a working system, were they pleased with its performance? "The Commodore 64 is, without a doubt the best micro that we could have bought. There is a reasonably large range of software available and I see no problems in the future in buying new programs. I'm a little disappointed that there is no graphics dump on the printer I chose as I would like to design a startling header for circulars and letters.

"At the time we were more interested in price than facilities and I rather regret that choice. I'm pleased with the software as it does just about everything I want it to do at the moment. My only complaint is that we still have to keep a fair amount of paperwork. I had thought that I'd be able to do away with all the odd pieces of paper that we used to have but I was rather naive about computers and I suppose I thought it would do more than it actually does."

Setting up accounts

Tim is currently entering all the shop's accounts for the last year and is finding it a slow and time-consuming process. "I'm wondering whether or not it's all worth it as, at the moment, I'm spending a lot more time on the books than we used to". However, once this is over he envisages a couple of hours work a week will suffice to keep the accounts up-to-date.

"What is useful and time-saving is the fact that the computer doesn't make mistakes in calculations. You'd be surprised at what a difference this makes". The Cashbook in the Gemini package is adequate for recording the income and expenditure of the shop. Depreciation and total profit and loss can be calculated using the Final Accounts program in the package. There is also a VAT file which will be of more use as the business expands as they hope it will in the future.

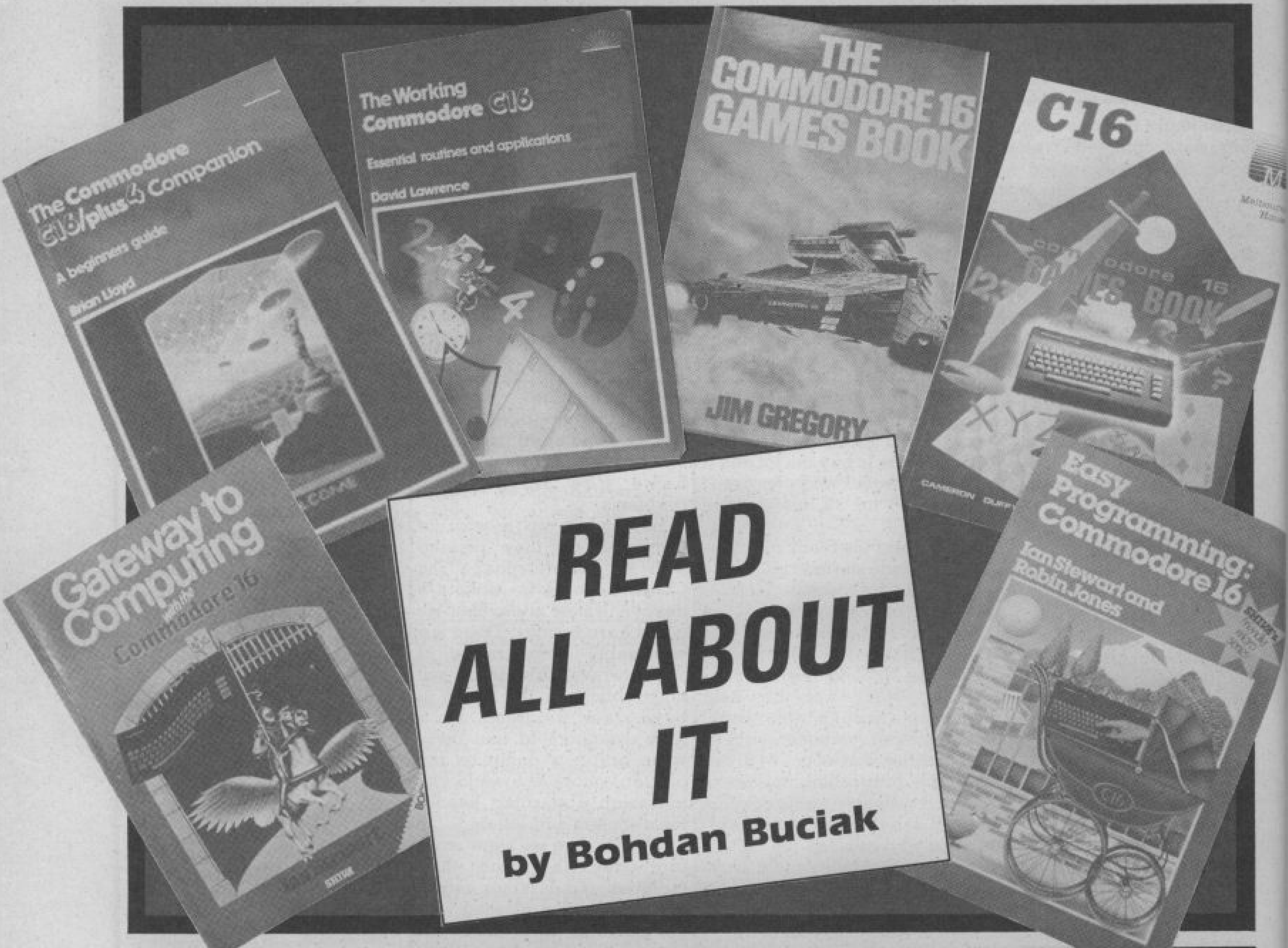
Future prospects

And what of the future? Tim is optimistic: "The most exciting thing about the 64 is that it feeds me with ideas to make the shop more efficient and profitable and to cut out boring tasks that no one enjoys." Like building up the mail order side of the business. The 64 would be used to list the current stock, prices and any extra details which would then be mailed out to any prospective customers, to encourage large orders perhaps on a wholesale basis.

Another interesting idea is to record data about the livestock which could be used to determine the particular needs of each animal. Details about food, temperature, birthrates and causes of death would be so much easier to record using a computer. This would, in Tim's opinion, contribute to improving the quality of life of many animals.

One plan in the pipeline is to open a quarantine station to handle the importation of exotic birds. Obviously, a computerized record of the conditions and care of birds directly following their entry to this country would prove to be invaluable to retailers and customers and, as far as Tim knows, there are no other importers who provide this service.

So, it appears that the 64 figures prominently in their plans for the future. "I can see endless possibilities for the 64 in our business and would recommend any small business such as ours to invest in a micro. I must say we didn't realise we'd have to buy so many extras, but this was because we really knew nothing about computers at the time. If you've got lots of ideas of what you could do with a micro in your business then it's definitely worth the expense and effort." □



READ ALL ABOUT IT

by Bohdan Buciak

Books for the Commodore 16

Last month, we gave you an extensive list of all the software we'd found for the Commodore 16. But when you've got bored with playing the relatively few games so far on offer, you might like to type in your own programs or read up on ways to use your new computer. Here's a roundup of the books so far published that we've heard of.

GAMES

Commodore 16 Games Book, Melbourne House, £5.95.

Melbourne House has followed its success with Games Books for the Commodore 64 with a copycat offering for the C-16. Although programs are arranged in order of sophistication, they're grouped in sections on the Contents page. And there seems to be something for all tastes: evasion games, logic games, shoot 'em ups, strategy games, adventures, gambling games — there's even a simulation called Looney Lander.

Listings are printed directly from a printer. There's no code conversion of graphic characters but they've been redefined better to resemble those on your keyboard. Spaces and colons are also clearly marked and there's a Chexsum (error checking) program with tables for each listing, so keying in should be no problem.

There's also some thoughtful features: like a screen-shot (some of them not quite rivetting) for each program, listings that are broken down into clearly defined sections and programming suggestions that should help you enhance and adapt what you've already typed in. Looks like a good buy.

The Commodore 16 Games Book by Jim Gregory, Collins, £6.95

Written by Jim Gregory, boss of the Mr Micro software house, this book contains many of the efforts of Mr Micro programmers. The selection of games is wide-ranging but concentrates mainly on old favourites. So you'll find versions of classics like breakout, maze, frogger and pacman games. There's a section on board games like chess and draughts, card games like pontoon and poker and a few 'thinking' games. You'll also find a text adventure about the Marie Celeste.

Tagged on at the end of the book are a couple of useful utilities: a character defining program and Music Monitor, a utility that lets you build up song sections and then sequence them in harmony.

Again all listings are taken directly from a printer, given liberal sprinklings of explanatory REM statements, and graphic characters are converted into codes which you'll find listed at the beginning. Like the Melbourne House book, most of the listings are encouragingly

short and none are too long to be off-putting — except Star Trek (you must go boldly on).

100 Programs for the Commodore 16, Prentice Hall, £7.95

Not published until June, this is a conversion of the Messers Gordon and McLean book of the same title for the Commodore 64. But this is much more than a games book, in fact, games cover only 30 of the 344 pages. There's a lot here for the keen programmer, including programs for graphics, user-defined characters and data handling.

For the businessman there's a large section covering tax calculation, stock control, and a suite of programs for a point-of-sale system. If that doesn't grab you, there are also sections for educational programs, recreation and domestic use, and science, including one that lets you calculate the value of a resistor by its colour code. For the money, this book's got a great deal to offer.

PROGRAMMING

The Commodore C16/Plus4 Companion by Brian Lloyd, Sunshine, £5.95

Hedging his bets, Brian Lloyd has produced a 'beginners' book for the compatible C-16/Plus 4 machines, probably the first one on the market. It kicks off with the usual 'getting started' section that's covered perfectly adquately in the user manual.

From thereon, it's down to business, with the next three chapters devoted to showing you how to write your first program, complete with various loops, GOTOs and GOSUBs — pretty good going for a first-timer. By the middle of the book, you're dealing with the Commodore 16's extended Basic commands. Each one is dealt with separately, explained and illustrated with example programs. Since most of these deal with graphics, that topic gets a chapter to itself and a drawing utility called Artist.

For the more advanced, there's a chapter on machine-code that introduces the built in Tedmon monitor, followed by a section on using the 1541 and 1542 (will it ever appear?) disk drives, disk and file-handling commands. The book is rounded off by the usual appendices giving a list of Basic words, abbreviations, ASCII codes and the like.

The Working Commodore 16 by David Lawrence, Sunshine, £6.95

Curious title, but this looks like a good and meaty book for the more experienced and adventurous programmer. And there's a large variety of programs to type in and digest, most of them of the practical kind.

The book is structured into chapters dealing with time, graphics, drawing, filing and wordprocessing, and finally with accounting. Each chapter contains a set of programs chopped up into 'modules' which are listed and discussed separately, and explained almost line by line — so there's no excuse for not knowing what's going on.

The final chapters look at more substantial programs; like Unifile, a filing program and Texted, a simple wordprocessor written in Basic. Towards the end, you're confronted with two finance programs called Banker and Accountant. If you can muster up the enthusiasm to key them in, they'll probably give you a good grounding in business computing.

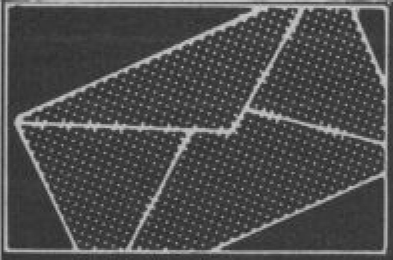
Easy Programming: Commodore 16 by Stewart and Jones, Shiva Publishing, £5.95.

This book is aimed squarely at the young first-time user and assumes no prior knowledge. It tries to be friendly, lucid and humorous — but the cartoons won't have you in stitches.

You're lead firmly by the hand through setting up the computer and getting to know the keyboard, to writing your first program. Then it's on to binary and memory locations and more complex topics. Throughout, you're given projects to tackle, with answers given at the end of each chapter. The book emphasises structured programming methods and debugging techniques which should provide a firm foundation for more advanced programming. □

LETTERS

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think — about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course; but anything that might be of specific relevance or general interest will make it to these pages.



Micronet Tip

If you type "red" when the scores come up on Sega's Zaxxon you will now be invulnerable and can fly through walls.

J. H. Gunning,
35 Greystown Park,
Upper Malone,
Belfast BT9 6UP,
Northern Ireland.

● A few readers have started writing to us through the 'Talkback' facility on Micronet — the above is an example. If you're on line, why not drop us a message? Who needs stamps anyway?

In praise of Vic

I refer to the excellent Commodore Software Guide which was banded to the February edition of *Commodore User*.

I should like to point out that on page 24, under Wordprocessors, Wordmanager was mentioned under "For the 64", but no mention was made, under "For the Vic", of the Vic-20 version of the same program, which in my view is easily the best wordprocessor for the Vic. It was used to produce this letter.

The Vic-20 version of Wordmanager is not, to the best of my knowledge, sold as a separate entity. It comes 'bundled' with Display Manager, a 40/80 column cartridge for the Vic-20, and is imported, as with Wordmanager for the "64", by Impex Designs. Also included in the package is a 'mail-merge' program for use in conjunction with Wordmanager. These programs require the use of a mother-board and a 16K RAM cartridge in addition to the Display Manager cartridge.

I have been using the Display Manager package for about eight months, with great success. At the time of purchase by me the price was £99.95 including VAT. May I mention that the benefit of 40 and 80 column displays is not by any means restricted to word-processing. It has opened up, for me, new possibilities with regard to my own self-written programs.

May I appeal to you not to write off the Vic-20 just yet, as seems to be happening in many computer publications. It may be primitive and no longer on the market, but it will be around for a long time yet, in homes and offices.

John W. Dunster,
Stables,
Rolls Park,
Chigwell,
Essex IG7 6DJ.

Christian computing

Could you please mention the newly formed 'Christian Micro Users Association'. We hope not only to link a large number of Christian micro users but also to promote the use of micros in Church related activities.

There is a great need to discover the few sources of 'Christian' software and to share the expertise and ideas of the many individuals who have sought to use micros within their church activities.

Anyone interested can send a large SAE to the Christian Micro Users Association at the address below.

6 Walkley Street,
Sheffield, S6 3RG.

Leave it out

The Complete Commodore Software Guide with the February issue of *Commodore User* was a good idea and is a useful reference work. However, there was an omission of the well-known simulation program against which all others are measured — Flight Simulator II by SubLOGIC. It is unquestionably the best flight simulation program written for micros. I also noticed Paperclip was missing from the Wordprocessor section as was Colossus Chess from either the Games, Education or Leisuresoft section. In spite of these few omissions I quite like the Software Guide. Will you publish it as an annual supplement?

Lt. Col. James M. Kennedy,
Lost Battles,
57 Gunnersbury Avenue,
Ealing,
London W5 4LP.

● We regret the omissions you mention, but these things will happen when you're trying to squeeze in as much software as possible. Many readers have found the Software Guide useful, so there's a strong case for publishing it again next year.

Turbo headaches

The most common and frustrating fault with the Commodore 64 system is loading problems with the C2N tape deck. Users may frequently find that a tape will not load on their own system but will on someone else's. The reason for this is that the tape deck is set up in production to accommodate a data transfer rate of 300 baud, but currently much of the software is designed to run at 1200 or even 3000 baud and at this rate the alignment angle of the head to the tape is critical if a clear signal is to be transferred to the computer.

I have recently solved this problem by using the newly developed Azimuth Head Alignment Tape marketed by Interceptor Micros. The process can be done in a matter of minutes. A superb game on the reverse side of the tape loads at 3000 baud and gives a final accuracy check.

Michal A. Jay,
17 Colebrook Croft,
Shirley,
Solihull,
West Midlands B90 2JD.

Super Screen problem

In desperation and frustration I write to you in the hope you may solve a problem that is plagueing my computer time.

It involves the use of that excellent Audiogenic program 'Super Screen' for the Vic-20.

I have written a program which displays tables of figures on the 40 column screen. My problem is that I am unable to print hard copy of the screen display on my MPS801 printer using either the normal or an ammended routine. Can you put me out of my misery by coming up with some suggestions.

Ross Dickinson,
29 Low Greens,
Berwick-upon-Tweed,
Northumberland TD15 1LZ.

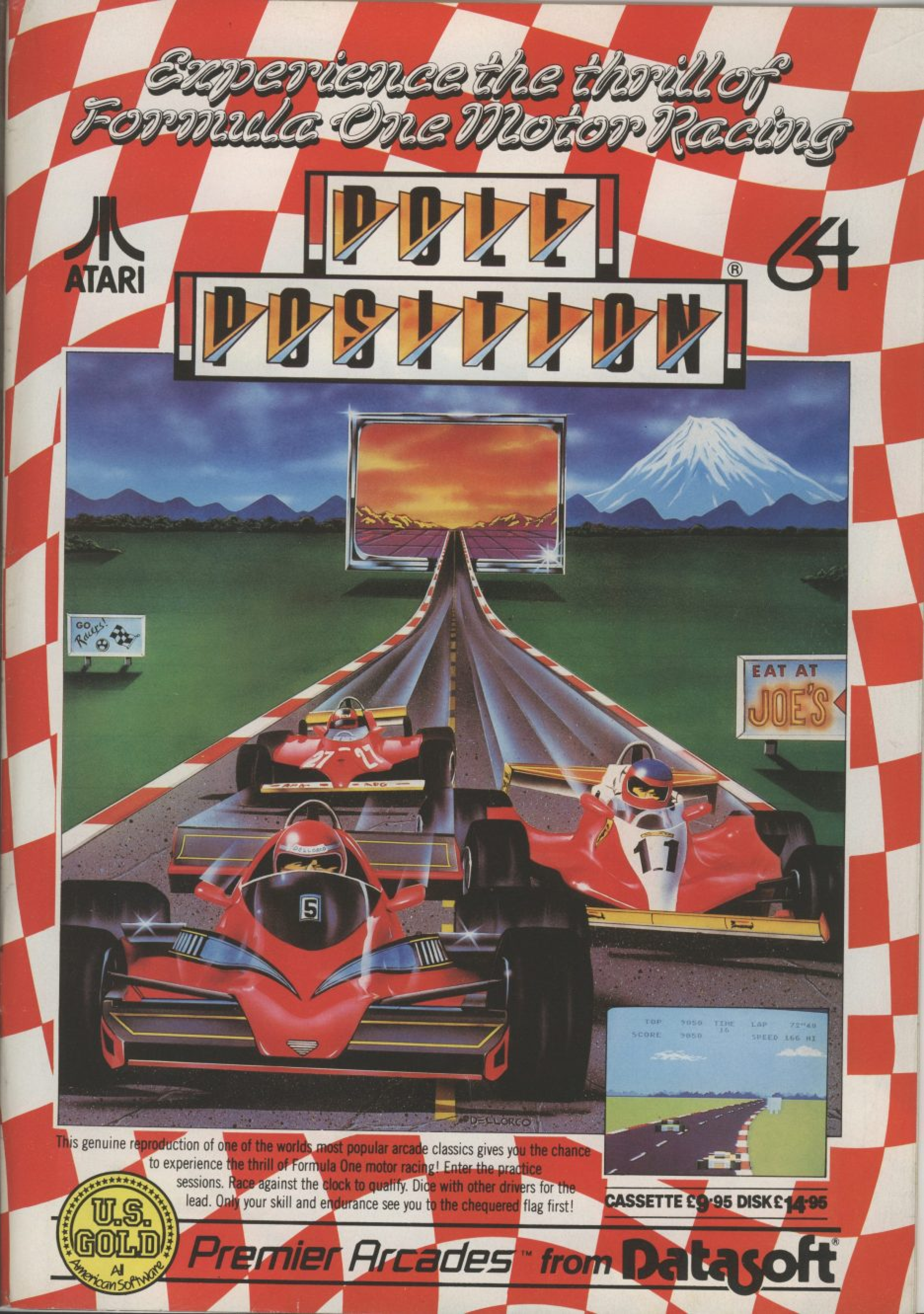
● There must be someone out there using Super Screen with the MPS801. Why not drop us a line?

Price-cut blues

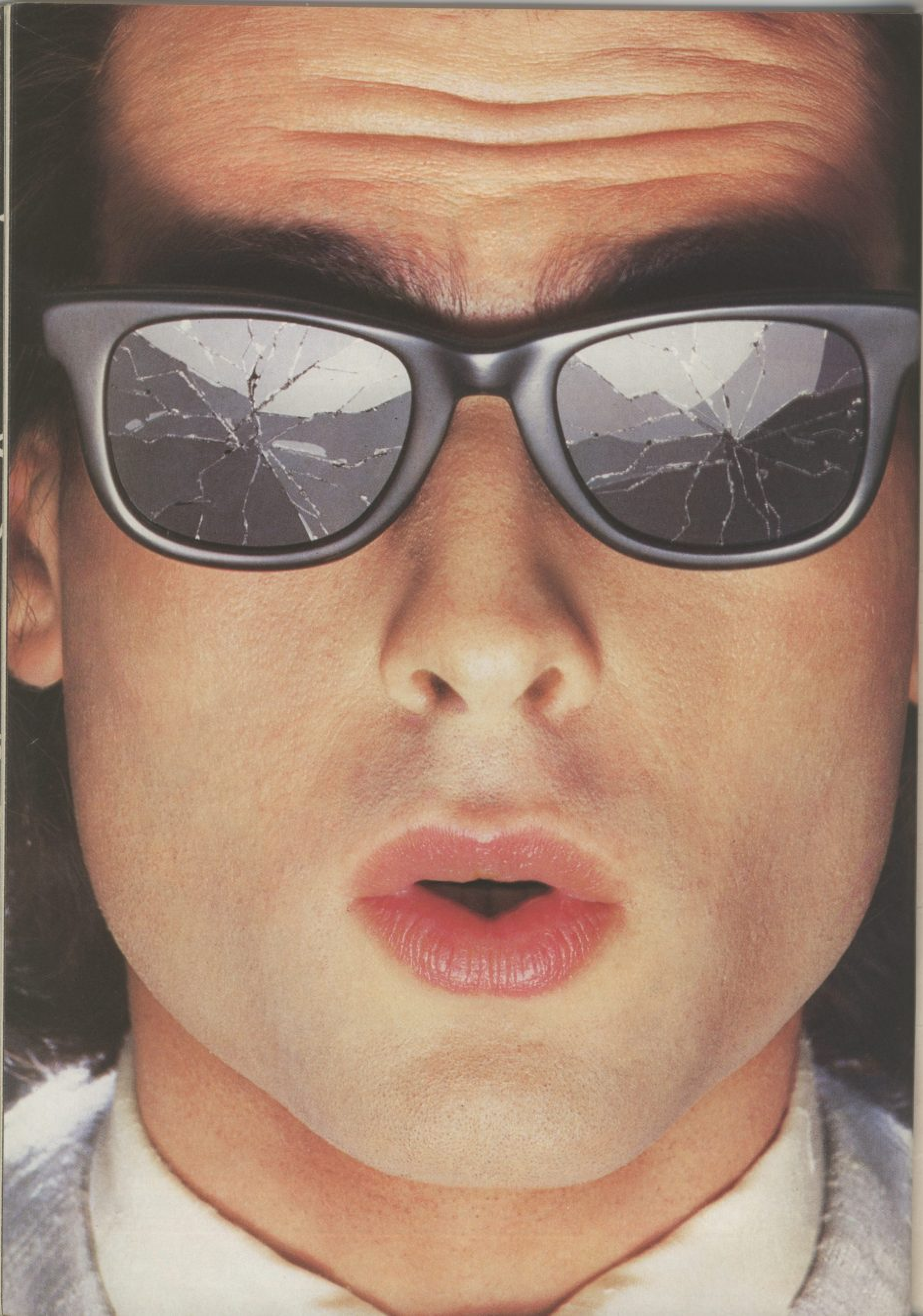
My dad bought me a Commodore 64 for Christmas and paid the full price of £140 for it. He was walking past Dixons this week and found out that they're now selling it for £80. He was very annoyed. Does this mean that they're trying to get rid of it before the new Commodore 128 arrives? And when it does arrive, will all the shops be selling the Commodore 64 off cheap

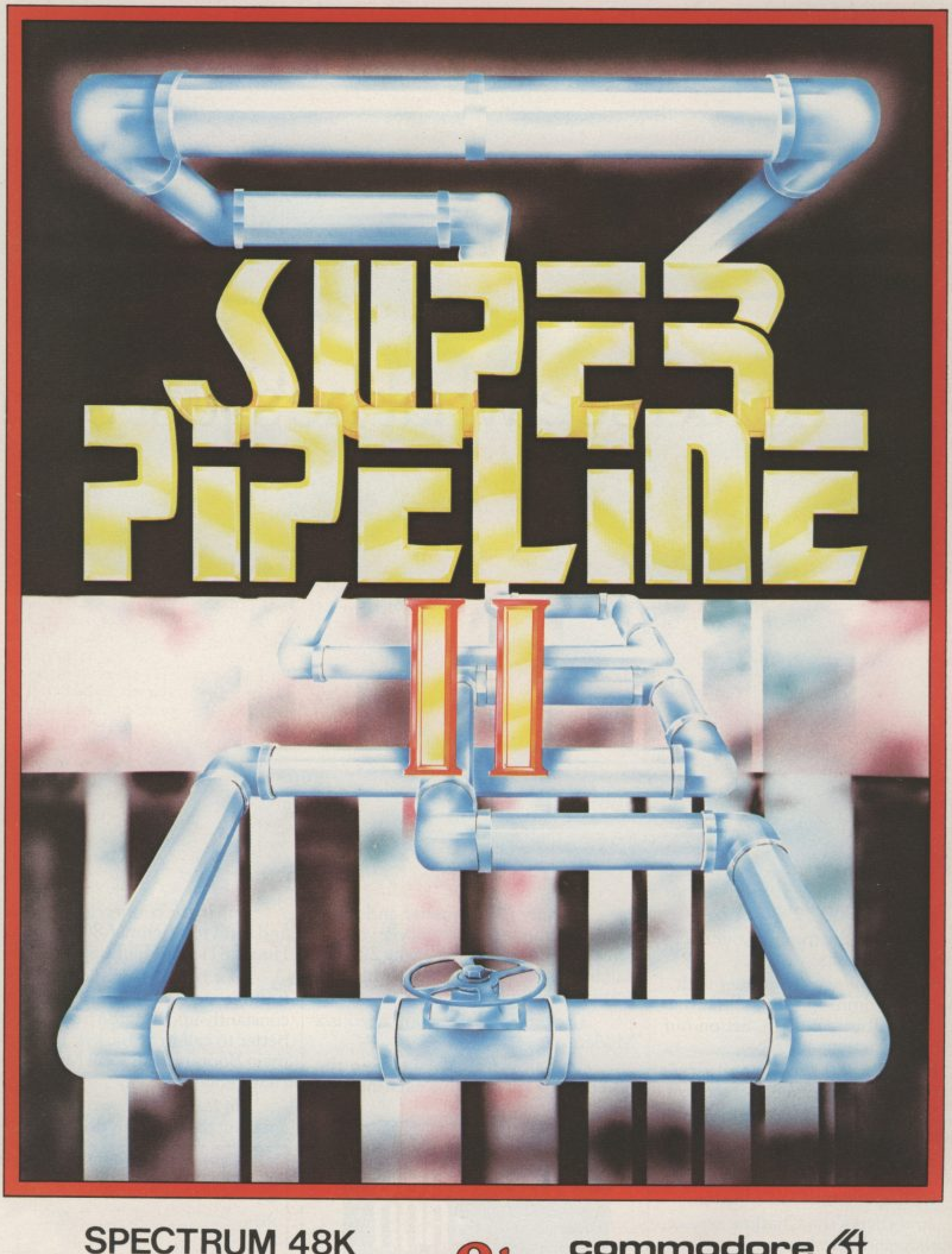
Garry Williams,
'The Olde Wodge',
Seven Sisters,
London N15

● Not only Dixons, but many other electrical chains have done the same. The problem seems to be lack of confidence in a machine that has not generated much really good software. Of course, that's not the case with the 64 for which Commodore UK insists on price cuts are planned. But we'll wait and see.



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SUPER PIPELINE
II

TOMMY'S TIPS

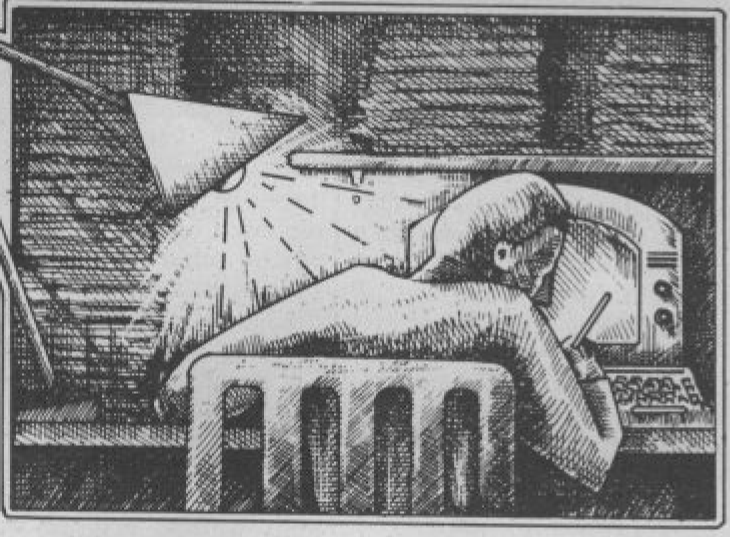
Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.

***Dear Tommy,* I've been having trouble using user-defined graphics on my 16K Vic 20. Every time I load a program which I have made which involves using UDGs the pre-loaded graphics seem to be erased from character memory. I would be very grateful if you could send me the correct routine to use. Thank you.**

There are two possible causes, the clues you give being *16K Vic 20* and the term *pre-loaded*. Because you only re-define characters in the *original* 5K RAM area you cannot put them at the top of memory on an expanded Vic since the VIC chip cannot see them; hence no characters. If you are putting them *below* the start of Basic correctly, then the other problem could be that if you have saved a program from the normal start of Basic and done a non-relocating load (i.e. LOAD"filename",1,1), then the program will revert to the normal start of Basic and wipe out the user-defined characters.

The correct method of creating UDGs was covered in the February issue in this column.* Note that once you have defined the new character set, different programs can quite happily be loaded in afterwards and use the new characters, provided they are loaded into the new start of Basic using the standard load command. (*Don't forget to NEW the Basic area immediately after changing the start of Basic otherwise you will pick up the garbage that's already there.)

***Dear Tommy,* On my Commodore 64, I have been working out a program, in which a joystick can be used. So far I have been able, with the following program, to use the down and right movements on the joystick, but I cannot get the up and left movements to work. Here is the program.**



```
10 GET A$
20 IF A$= "←" THEN
   PRINT "DOWN": GOTO
   40
30 IF A$ = "2" THEN PRINT
   "RIGHT": GOTO 40
40  GOTO 10.
```

I would be very grateful if you could solve this problem for me. Also, please could you tell me how to use the 'F' keys. Thank-you.

I am afraid you are on the wrong track. What you have discovered is a side effect of using the joystick, not the correct method of operation. To read all positions of the joystick plus the fire button you need to use the following code:

```
10 JR1=56320: JR2=56321
20 JV=PEEK (JR1) : IFT
   (JVAND31) = 31 THEN
   20
30 IF (JVAND1) = 0 THEN
   PRINT "UP";
40 IF (JVAND2) = 0 THEN
   PRINT "DOWN";
50 IF (JVAND4) = 0 THEN
   PRINT "LEFT";
60 IF (JVAND8) = 0 THEN
   PRINT "RIGHT";
70 IF (JVAND16) = 0 THEN
   PRINT "FIRE";
80 PRINT: FOR A=1 TO
   100: NEXT A: GOTO 20
```

This code will read port 1; to read port 2 substitute JR2 for JR1 in **line 20** (the delay in line 80 is just to stop the print line scrolling too fast up the screen every time you touch the joystick!).

As for the 'f' keys; these cannot be 'used' for anything without going into machine code. However, they still function as keys and can be checked for in the same way as any other key on the keyboard. The following code shows how to see which 'f' key has been pressed:

```
10 DIM KEY (8)
20 FOR A=1 TO 8: READ
   KEY (A): NEXT A
30 GET A$: IF A$="" "
   THEN 30
40 V=ASC(A$) −132: IF
   V<1 OR V>8 THEN 30:
   REM Ignore key if not 'f'
   key
50 K$=RIGHT$(STR$
   (KEY(V)),1): PRINT "F";
   K$;" WAS PRESSED"
60 GOTO 30
70 DATA 1,3,5,7,2,4,6,8
```

Basically, they return the ASCII values 133-140 (but note that the sequence is all odd 'f' numbers then all even 'f' numbers). What you do after they have been pressed is of course entirely up to you; until then they are just 4 different coloured keys. Games and business software often use them to initiate various functions and there is no reason why you cannot do the same in your programs.

***Dear Tommy,* I have a Commodore 64 and the MPS 801 dot matrix printer. I have had the printer for about two and a half months now, and in that time it has worked alright. But just recently I noticed it was smudging, and some letters came out dark and some came out as light so I could hardly see them. Could you please tell me what could be wrong as I paid quite a bit of money for it. I would be very grateful if you could say what's causing this trouble.**

This sounds very much as though you have got some dirt in the printing head. This would certainly cause the small 'pin-hammers' to stick unless you have the setting on 'heavy' and account for the uneven printing. You can obtain small typeface cleaning kits from some typewriter shops (consisting of a small brush and some cleaning fluid), but you should check that it is suitable for use on a dot-matrix printer. Alternatively, a small modelling paintbrush might be suitable.

In either case you will probably have to remove the head to do the job properly; since the printer is still under warrantly you would be better taking it back to the dealer and asking him to clean and set it up for you. He might make a small charge if the fault was yours rather than a fault on the printer, but it would preserve your warranty should anything more serious develop later on.

***Dear Tommy,* I have recently acquired a 1541 disk drive and would like to know more about it, especially the Test/Demo disk supplied with it, as I am having difficulties in using the various programs on it. Can you recommend a useful authoritative book on this subject? What about "Anatomy of the 1541" by Adamsoft?**

Secondly, I have been offered the use of an OKI-Microline 83A printer as long as I can obtain an interface to operate it from my Commodre 64. Can you recommend a source for such a device? Would Cheetah's Interpod do the trick?

Thanking you in advance for you time and effort and tell everyone at Commodore User to keep up the good work — it's a great mag!

TOMMY'S TIPS

There are two books which seem to cover what you need to know about the 1541. One is the book you mention and the other is *Commodore 64 Disk Companion* by David Lawrence & Mark England. It costs £7.95 and is published by Sunshine Books. I suggest you look at both and see which covers your particular queries best. If only one of them is actually available then get that, since a book in the hand . . .!

Regarding the Microline 83A, this normally has a selectable interface for either Centronics parallel or RS232 serial. Interpod will certainly allow an RS232 printer to be connected through the Commodore serial port; this is a hardware convertor and costs £50. There is also an RS232 interface available from Stack Computer Services; it costs £33 and is claimed to work with any software. Even cheaper is the Stack Centronics interface at £24. This is software based and will not work with every WP program, although most of the commoner ones *are* compatible.

***Dear Tommy,* I have a utility which permits me to change both the DISK NAME and ID number. I believe changing just the DISK NAME is quite permissible but I'm not sure whether or not changing the ID number can corrupt existing programs held on disk at some time in the future. Your advice on this matter would be appreciated.**

The disk ID is the means by which the DOS (Disk Operating System) recognises which disk is in the drive. It needs this because it stores a map of the available storage space, known as the BAM (Block Availability Map) which it loads into its memory the first time it accesses the disk. If the disk is changed, the DOS can recognise the fact from reading the ID and will update the BAM to that of the new disk.

Changing the ID has no effect whatever on the programs; the danger lies in having two disks with the *same* ID. If this happened, and you replaced the disk in the drive by the one with the same ID, then the DOS would continue to use the BAM from the old disk with possibly disastrous consequences. It would happily overwrite areas of the new disk that had data on them if the BAM from the old disk indicated they were free. Provided you always choose a unique ID for each disk when you initialise I really see no need to alter it later on.

***Dear Tommy,* Could you tell me why I cannot make a back-up copy of a Turbo loaded program with the back-up copiers? Also is there anything on the market that will make a back-up copy of a Turbo program?**

The simple reason is that in addition to speeding up the loading, Turbo programs also offer the software house a degree of protection against piracy! The effective higher data rate and format will defeat most tape copiers as you have discovered, hence their widespread use. There are tape to disk copiers that claim to overcome the problem, but I am not aware of any tape to tape copier *programs* that will correctly back-up a Turbo-program. What *is* claimed to work however, is a hardware/software system that utilises two cassette units; it is called **doubler**, costs £12.95 and is available from **Micro Centre**, who can be contacted on 0386 49641 or 021-458 4564. However, by the time you have acquired a second recorder it is not a cheap solution since you are of course only going to use it to make single back-up copies for your own use (aren't you!).

***Dear Tommy,* I am thinking of buying a BBC emulator for my Commodore 64 but I've been told that I can only load programs by typing them in. However, I wanted to load programs from disk using my 1541 Drive but again I have been told this cannot be done using BBC software on disk as the 1541 disk drive will not load them. Can the 1541 disk drive be altered to do so? If so how?**

What you have been told is perfectly true. Like most things in the computer world, different disk drives have different formats. The Commodore drive for example uses soft sectoring with variable numbers of sectors per track. The BBC disk format is totally different and there is no way that disks recorded on one can be read on the other. Neither can a 1541 drive be plugged into a BBC, nor a BBC drive into a 64. This is because the 1541 has its DOS (Disk Operating System) in a ROM on board the disk drive, whereas the BBC DOS has to be loaded into the computer. All this is a long winded way of saying that the only method of running a BBC program on the 64 is to type it in line by line!

***Dear Tommy,* I have borrowed a copy of Superbase 64 from a friend with a view to future purchase. I have a 1515 printer (since the Vic 20 days) and because of the requirement to switch the screen off during printing it will not work with Superbase. I rang Precision Software and asked them if there was a way round the problem and a very helpful gentleman told me that they could supply a new replacement ROM for £12 + V.A.T. Can you please answer the following queries:**

(i) Is this ROM hard to fit?

(ii) Does it cure the problem enabling the printer to be used with other programs? (e.g. Easycalc which I intend to purchase shortly.)

Also can you please tell me has anyone written a book on Superbase 64 as I feel that the manual, though comprehensive, leaves the novice a bit in the air.

Provided you do not have two left hands and can mend a fuse without any problem then you should not have any difficulty fitting the new ROM in the 1515. The only thing you must be careful of is bending the pins on the device when inserting it into the socket, but provided you take your time and *don't try to force it* you will be OK. If you really cannot work out what to do, I am sure your local dealer would fit it for a small charge. As for curing the problem, it will become as compatible with the 64 as the 1526 that was designed for it; i.e. it *should* work with any program and will certainly solve the 'hanging up' that currently occurs.

Regarding a book on Superbase; Precision Software have now produced an Audio learning cassette that is specifically designed to lead you through the facilities. It is currently included with Superbase 64, but if you speak nicely to them they might be prepared to sell you one separately. Precision Software can be contacted on 01-330 7166.

***Dear Tommy,* Both my brother and I each have a Commodore 64. But we only have one disk and a printer. So, we have been wondering how to connect our computers together and share disk and printer. Is it possible to make a local area network without too much hardware? Would it be possible to use the serial line to plug in the extra computer as it is for disks and printers? These things I find too risky to experiment with, without know-how.**

The first thing to say is that you cannot just plug the two computers into the serial bus; the result would be two locked up computers! What you need is the Vic/64 Switch from **Kobra**. This allows up to eight computers to access a single serial bus which can then have disks and printers attached as normal. Provided both computers don't try to access the bus at the same time each computer will think it has the devices to itself. If a clash does occur, the second machine to access will be told they are busy and will wait until the bus is clear in the normal way. According to the price list I have, the device costs £85 plus the cost of the connecting cables, but check with Kobra on 04912 2512 as I am sure I have seen them cheaper. □

CLASSIFIED

Vic-20 Word Processor. Victext. Powerful word procesor. Facilities include:- Large text buffer, auto centre text, variable tab, insert, amend, delete, copy, move text, word count, right justify, etc. Fully menu driven with comprehensive easy-to-use instructions. Needs + 16K expansion min. Great value: cassette £6.95, disk £9.45.

Vic-20 Data File. Takes the place of any card index. Facilities include:- save, loadfile, full sort, print all/part records, amend, delete records, memory remaining, etc. Needs +8K expansion min. Cassette £4.50. Both programs can be used with all direct connect Vic printers inc 1520 printer plotter. Fast delivery by first class mail. Send cheque/PO to: A&C Software, 75 Oakthorpe Gardens, Tividale, W. Midlands B69 2LF.

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Reasonable cash prices paid for machines in good working order.
Telephone 0604-48275
Mailforce Ltd
11 Tenter Road, Moulton Park,
Northampton NN3 1PZ

Vic-20 starter pack. Quickshot 2 joystick, 16K Rampack, many games including 16K Skramble, Pharoahs Curse etc., 5 cartridges and mags. All for £85 o.n.o., v.g.c. Telephone: Bedford 782568 (after 6 p.m. weekdays), anytime during weekend. Will not sell separately. You collect.

M.S. Basic Compiler for Commodore 64 with integrated assembler. Features include procedures, sound, graphics, 3 levels of expressions. Send cheque/P.O. £12 or £12.60 c.o.d. Tidal Software, 10 Hawkshead Street, Southport, Merseyside PR9 9HF.

Vic 20 C2N tape recorder, 4 slot mother board, 16K RAM, super expander, m/code monitor cartridge, 6 game cartridges, 26 cassette games, reference guide, Introduction to Basic Parts 1 and 2. Quick sale £245 o.n.o. Phone: Pendine 389.

WARNING

It is illegal to sell pirated copies of computer games. The only software that can be sold legitimately through our classified section are genuine tapes, disks, or cartridges bought from shops or by mail order from software houses. *Commodore User* will press for the maximum penalties to be brought against anyone breaking these rules. We regret that due to large-scale swapping of pirated software we can no longer allow swaps of tapes, disks, or cartridges in our classified section.

The Friend; an essential toolkit for the Commodore 64. Features bi-directional listing, renumber, rescue, auto line, coding of graphic symbols for listings, block delete, programmable function keys, disk operating system supporting scratch, rename, copy etc., sprite control, numeric conversions, melody key beeb, trace plus speed control, merge, append, chain, variable dump, printer command and more than you ever need!! All this for only £10 disk, £8 cassette. Send P.O./cheque to William Fong, 5 The Birches, Victoria Way, Charlton SE7 7PB.

Stop! Read this! For Commodore 64. Future Finance (disk) — never used — boxed as new. £75 new — yours for only £50. Also 1520 plotter/printer + extra paper — rarely used — excellent condition. A giveaway at £50 (worth £99.95 new). Telephone: 01-421 1191.

Penpal for Vic user to exchange ideas and information. You do not need to have a lot of experience. Aged between 11 and 14. 10 Morton Court, Blackwood, Lanarkshire, Scotland. Tel: 0555 894304. All letters answered.

CBM 64 user wants to correspond with similar to exchange ideas and programs. Also wanted: instructions for Worms by Electronic Arts. Write to Steve Christian, 45 Wallgate Road, Liverpool 25. (Also wanted: detailed map of Midnight).

Vic-20, C-64 software for sale. All originals. UK and US goodies, tapes, disks and cartridges. No rubbish. For graded lists write to John Keogh, 30 Highwood Avenue, North Finchley, London N12 8QP. Cheers!

CBM 64 software for sale. Future finance — financial planning package — unused; easy stock-stock control package used once. Both complete with user manual and back-up disk. £40 each o.n.o. Write to S. Horvatt, 9 Radcliffe Drive, Halesowen, West Midlands or phone 021-421 8230 evenings.

Vic-20/CBM64 Software Hire
Free membership. 300 top titles. Send 2×17p stamps for your hire kit to:
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35 North Audley Street,
Mayfair, London W1Y 1WG.
Please state which machine.

C16 software. Now available, the game you'll love to hate — 'Pontoon' £4.99 inc. p&p. Send cheque/P.O. to Venturegate Ltd, 17 Harold Road, Leeds 6 1PR (please allow 28 days for delivery).

CBM 64 modem software wanted on disk if possible. Also, is there any person interested in exchanging tips, hints etc. on the CBM 64 modem? Please write: B. Miller, 31 Greenway Road, Widnes, Cheshire WA8 6HE or Mailbox me: BM4 Compunet.

CBM 64 communications modem for sale. Just two months old. Hardly used. Genuine reason for sale — £75 o.n.o. Phone: 0686-25238.

Commodore 64 user wants computer penpal aged 12-13. Write or send a program on tape (I promise to send back any tapes) to Simon Dowd, Four Trees, Narrow Lane, Marden, W. Yorks BD16 1HX.

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Commodore 64 software for sale: Zaxxon, Boulder Dash, Kong Strikes Back, Daley's Decathlon, Aztec, Select-1, Hampstead, Disco, Mystic Mansion, Kaverns, Khafka, Rollerball, Micro Olympics, Death Star, Quest, Merravid. £70 the lot or swap 1520 printer/plotter. Mitchell, 9 Southend, Dereham, Norfolk. (0362) 4497.

Software for sale for CBM 64. Many new titles including Strip Poker, Codcam Warrior, Poster Paster. Open to offers, phone 051-608 2927. Ask for Steve.

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AD INDEX

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28	29	30
31	32	33
34	35	36
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40		

Warning
It is illegal to sell pirated copies of computer games. The only software that can be sold legitimately through our classified section are genuine tapes, disks, or cartridges bought from shops or by mail order from software houses. *Commodore User* will press for the maximum penalties to be brought against anyone breaking these rules. We regret that due to large-scale swapping of pirated software we can no longer allow swaps of tapes, disks, or cartridges in our classified section.

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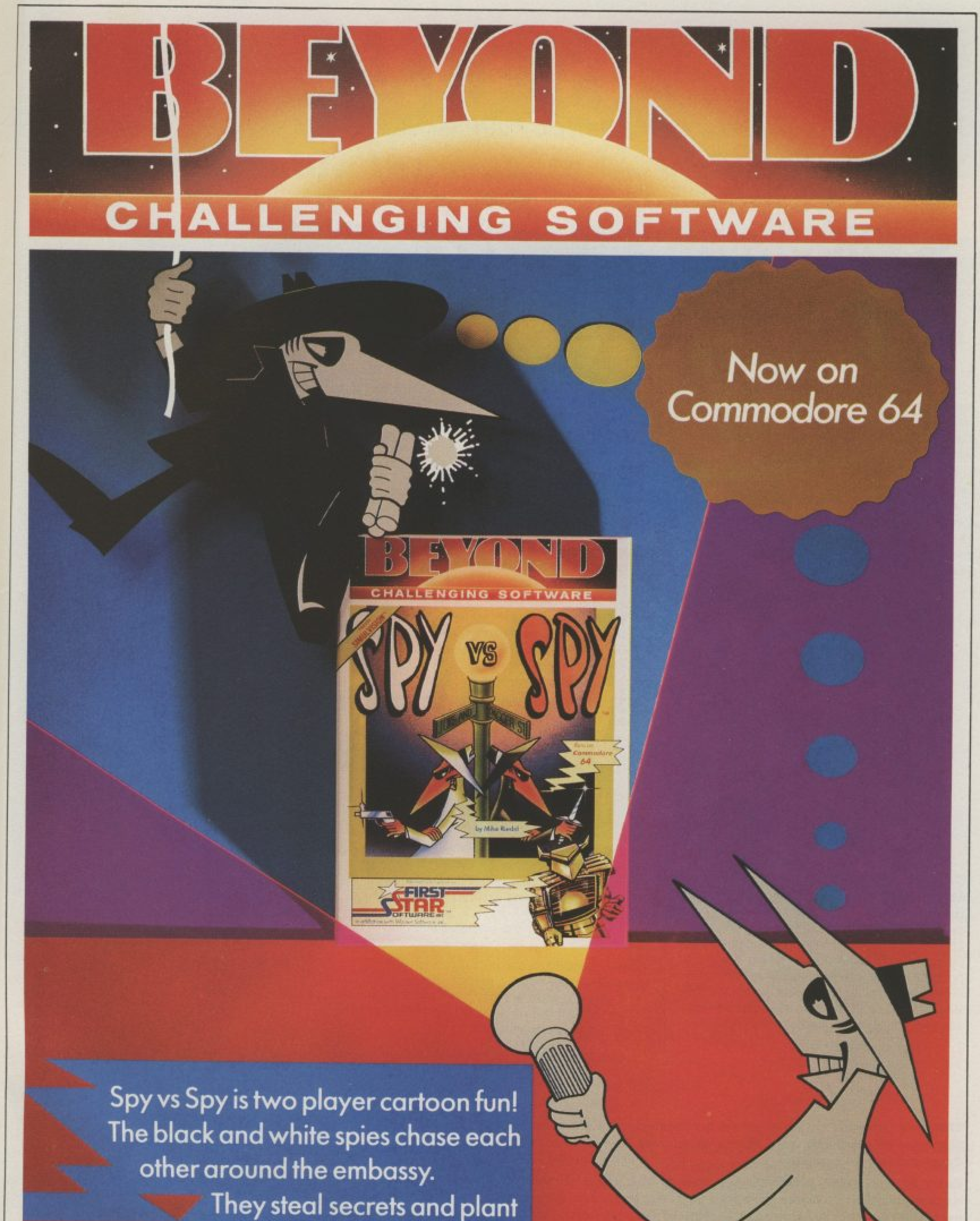
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micro magpie

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Micro Magpie for the Commodore 64 is probably the most advanced database management system available for any home micro. With Micro Magpie you can create a database system tailored exactly to your own information handling requirements.

With most database systems, you only get out what you put in. Micro Magpie gives you more! It can manipulate data between different files, perform calculations on numerical data, print out reports, and hardcopy data in graphical form. Only Micro Magpie can give you all these features . . .

* Fully user programmable database management system.
* Operated by easy-to-use pop-up menus using just four keys.
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* Can perform complex calculations on numerical data.
* Searches on any field, with wild card and part-field matching.
* Works with one or two 1541 disk drives.
* Horizontal or vertical bar graph or scatter graph output.
* Integral Centronics interface for parallel printer option.
* Professionally written instruction manual.
* Help readily available from Help Disk.
* Free application templates - Mailing List and Stock Control.

Micro Magpie would be excellent value if you bought it for the applications alone! You can have a highly sophisticated Mailing List system up and running within minutes, and you'll still be using only a fraction of Micro Magpie's potential! Once you start tailoring your own custom applications, you will begin to discover why Commodore User magazine called Micro Magpie "the software bargain of the year"!

MICRO MAGPIE - ON DISK ONLY

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Micro Swift

SPREADSHEET

Micro Swift - the affordable professional spreadsheet system for the Commodore 64. Micro Swift will prove indispensable in business or around the home to construct models of income and expenditure; for carrying out instant 'what-if' calculations to see how a change in one or more figures affects all the other figures; or for specialised applications where complex number crunching is required.

Micro Swift is unique in that it is operated by pop-up menus, a system pioneered by our Magpie database program. No longer do you have to memorise a whole hierarchy of commands and control keys - the menus appear when you want them, and disappear when you don't.

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Micro Swift gives you these amazing features . . .

* A1 to Z254 cell matrix.
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* Operated by easy-to-use pop-up menus.
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Don't be fooled by the price! Micro Swift gives you facilities equal, if not superior, to spreadsheets costing many times more. Micro Swift is available on disk or cassette. Micro Swift - Spreadsheet power to the people!

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MICRO WORDCRAFT

WORD PROCESSOR

Micro Wordcraft is our new disk-based professional word processor. It is a direct descendant of the highly respected Wordcraft program, which is in use world-wide on the larger Commodore machines, Sirius, and IBM PC, etc. Written in 100% machine code, Micro Wordcraft spells affordable office quality word processing for the home or business user.

It is often said that "you get what you pay for"; but with the Audiogenic Professional Series you get what you pay for and more!

Micro Wordcraft gives you all these advanced facilities . . .

* Full text control - document width up to 99
* columns, tabs, decimal tabs, justification and centering.
* Full text manipulation - on-screen editing, block move, block delete, string search and
* replace, underlining and emboldening.
* Scrolling screen display, uncluttered by control characters.
* Name and address files can be created and merged into standard letters.
* Easy merging of standard paragraphs. Compatible with Commodore, parallel and RS232 printers.
* Integral Centronics interface for parallel printer option. Instantly accessible Help screens.
* Comprehensive instruction manual included.

The name and address merging capabilities of Micro Wordcraft make it an ideal tool for small businesses, clubs, societies or hobby groups, where there are regular mailings of standard letters. For home use, Micro Wordcraft contains all the facilities you could ever need, at a price you can easily afford!

MICRO WORDCRAFT - ON DISK ONLY

£24.95 inc VAT

The Audiogenic Professional Series represents a price breakthrough for business-orientated software products. With Micro Magpie, Micro Swift, and Micro Wordcraft, the power and convenience of the computerised office can be a reality for all Commodore 64 owners!

Each of the three products represents the state of the art in its particular field. Great care has been taken over the documentation to make sure that you, the user, can quickly make use of the facilities available. Also, a full backup service is provided by the Audiogenic Technical Department, who are only a phone call away if you have any queries about the products.

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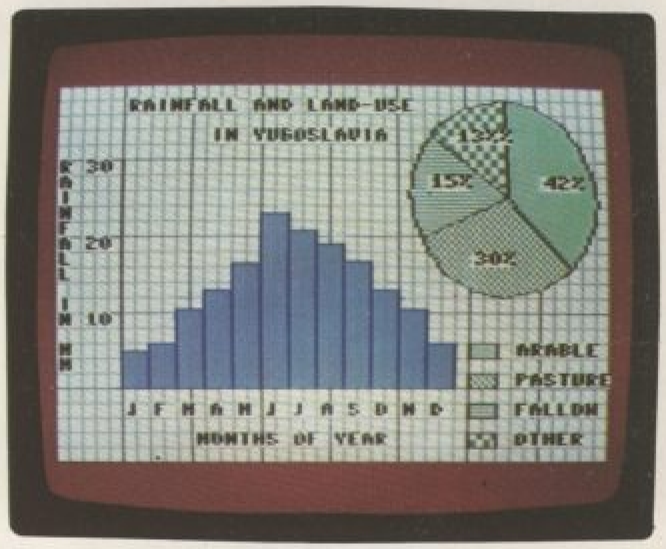
A Remarkable Innovation in Video Graphics

Until now, creating computer graphics in colour has been both a demanding and expensive endeavor. The Super Sketch Graphics Tablet provides a totally unique and simple medium for creating video graphics at a surprisingly low cost.

By simply moving the stylus control arm, as you would a pencil, Super Sketch reproduces the movement on the video screen. Four control buttons at the top of the tablet assist in operating the graphic functions of the software. Graphics may be created by "free hand" or by "tracing" from drawings clipped to the pad.

Compared with other computer graphic products, it is much easier to use than keyboard controls, does more than joysticks, paddle controllers and mouse controllers, and is less expensive than touch pad products.

A brief demonstration instantly proves the remarkable features of Super Sketch. This product makes an excellent "Demo Display" in retail stores because anyone can immediately produce graphics with little or no instructions.







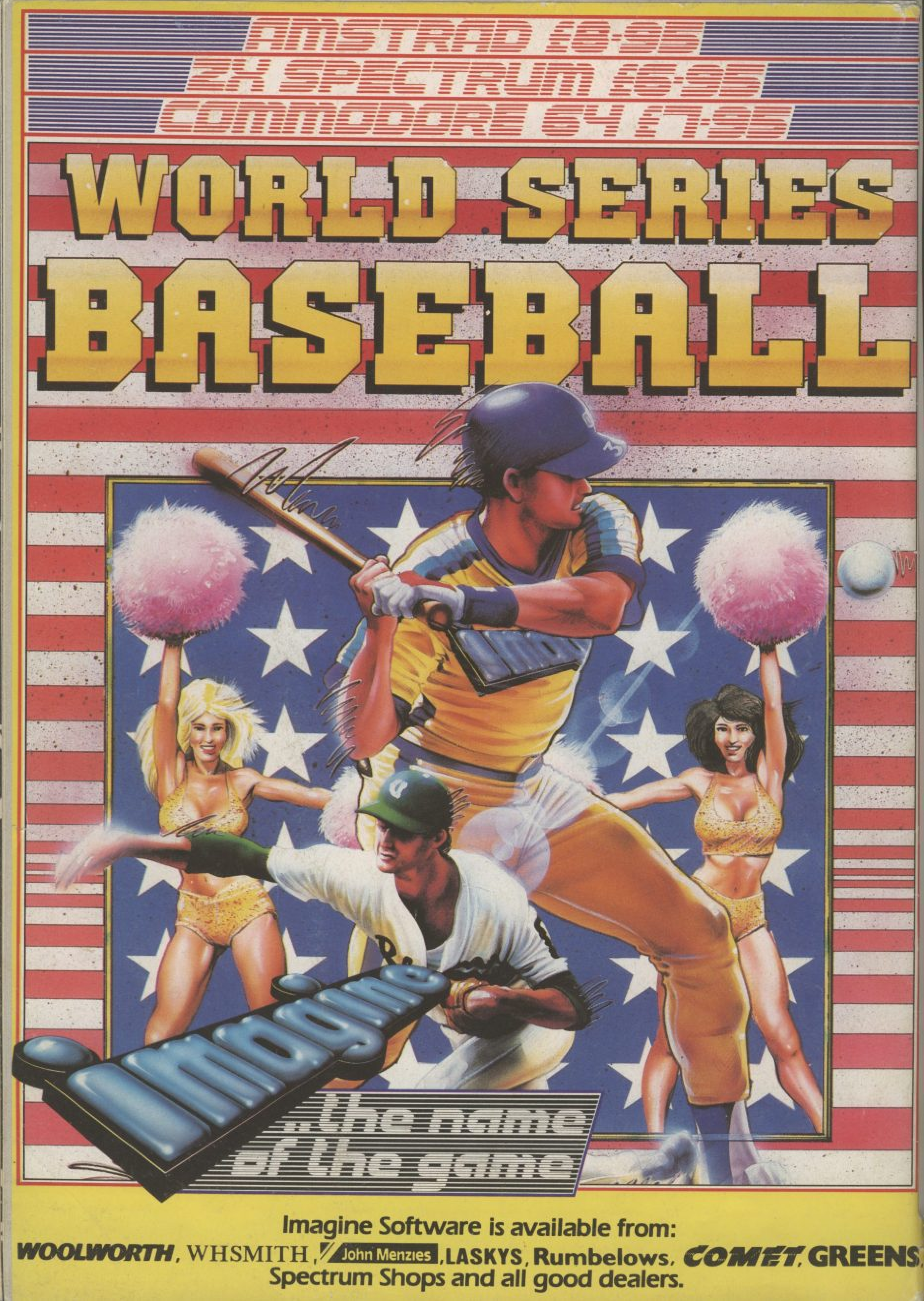
- Creates Super Video Graphics
- Absolutely Simple To Use
- Cassette Software Included
- Printer Utility Included
- Starter Kit Included

- Cassette Software Includes Printer Utility and Starter Art Programs
- Four Easy To Use Menus: Main, Brush, Design, Expert
- Custom Brush & Design Capability
- Keyboard Text Entry Capability
- Tracing & Free Hand Drawing On One To One Ratio To Video Screen
- Easy To Use Push Button Controls
- Graphics Can Be Saved To Cassette And Reproduced On A Printer
- Zoom Window

Compatibility	Screen Resolution	Color Selection	Unit Dimensions (In Gift Box)
Commodore 64	160 x 200	16	16½"x12¼"x2½"

ANIROG

Trade Enquiries
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